G. R. S. IX-5]

Previous references.

File No. 22-18

1918.

Serial Nos. 4

(Sanit)

Later references.

Sanit 97-18(1-3)

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GENERAL AND REVENUE SECRETARIAT.

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Serial Nos. 4

Part B for Dec — 1918.

SUBJECT.

Report & papers relating to the Sanitary Conference. June 1918.

9/1/1919.

W D 88—GPB—50,000—24-7-16

G.R.S. 11] 1918.

GENERAL AND REVENUE SECRETARIAT

(S. Army)

NOTES.

File No. 2218

FILE HEADING.

From

No.	Dated	Received

Diary No.	Enclos.	Spare Copies	Serial No.

BRIEF ABSTRACT OF LETTER.

NOTES AND ORDERS.

NOTES—First sheet.

GPB—15,000—24-4-09

G. R. S. III-2]

General and Revenue Secretariat.

Law File No. W83 22 of 1918-19.

Serial No.	
4	From the Lawy. Comr, Do B. Dis 43 d/ 10.12.18- 78 a dozen printed copies of the report &c called for in Sl 3 above.
	Submitted. The file was taken on 11.11.18 by Mr H. P. Black, Chas of the Rev Sects for submission & Asst Sec's vide Slip (Page 7)
	13/12 Submitted for perusal
	First Member Sec'y 11.12
	23/12/18

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16-12-18

Secretary will please send 2 copies to the Library
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NOTE—Contn. sheet.

WD A 1769—GPB—60,000—20-3-18—S.

2

Office of the Sanitary Commissioner
with the Government of Mysore.,

Bangalore, Dated the 10th December 1918..

No. B. 200 : 43
Encls: 12

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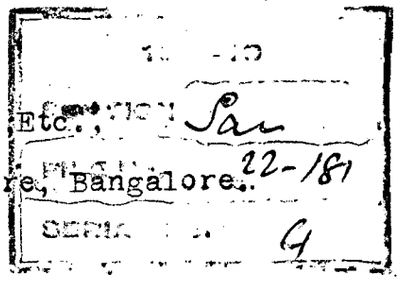

From

M. Srinivasa Rao, Esq., M.A .M.D.B.Sc. Etc.,
Sanitary Commissioner in Mysore, Bangalore.

To

C. S. Balasundaram Iyer, Esq., B.A.,
Chief Secretary to the Government,
Bangalore.

Sir,,

As desired in your letter No. G. 3782 // Sany. 22-18-3 dated the 20th August 1918, I have the honour to submit herewith a dozen printed copies of the report and papers read at the Sanitary Conference.

I have the honour to be,
Sir,,
Your most obedient servant,,

M Srinivasa Rao

Sanitary Commissioner.

WD 02765—GPB—; 79,000—25-2-17—S.

191

From The Sanitary Commissioner
17 37 in Mysore, Bangalore.

To The Chief Secretary to
Govt:
Bangalore.

Dated

Despatched 10-12-18

Received

General No. B.000:43

No.

Enclosure No. 12.

See with a dozen printed
Copies of the Report and
~~the~~ papers read at the
Sanitary Conference.

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2.30

CHIEF SECRETARIAT.
12 DEC 1918

REPORT AND PAPERS RELATING TO THE SANITARY CONFERENCE, JUNE 1918.

MEMORANDUM.

In accordance with Government Order No. 6439-40—Sany. 116-174, dated the 17th May 1918, the first Mysore Sanitary Conference was held in the Durbar Hall of the Public Offices at Mysore on Saturday and Sunday the 22nd and 23rd June 1918, the Sanitary Commissioner presiding.

The following gentlemen were present :—Rajaseva Dhurina Sirdar Mr. M. Kantaraj Urs, B.A., C.S.I., Mr. P. Raghavendra Rao, B.A., B.L., Raja Sabha Bhushana Dewan Bahadur Mr. K. P. Puttanna Chetty, C.I. E., Mr. K. R. Srinivasa Iyengar, M.A., Mr. C. S. Balasundaram Iyer, B.A., Mr. M. A. Narayana Ayangar, Mr. K. Matthan, Mr. C. Venkata Rao, Mr. Mahomad Zahiruddin Meccai, Mr. B. Venkoba Rao, Mr. C. Devaraj Urs, Mr. T. Chokkanna, Mr. K. Mylar Rao, Mr. B. T. Kesava Iyengar, Mr. R. Ranga Rao, Mr. E. S. Krishnaswami Iyer, Mr. C. Rajaram Rao, Mr. T. V. Kuppuswami Mudaliar, Mr. C. A. Nanjappa, Mr. S. Subba Rao, Mr. D. S. Puttanna, Mr. N. Rangachar, Rajasilpi Visarada Rao Bahadur, Mr. B. Subba Rao, Mr. S. Cadambi, Mr. D. G. Dani, Mr. T. Lakshmana Rao, Mr. V. Rangaswami Iyengar, Mr. J. Bhore, Mr. M. G. Rangaiya, Mr. S. H. Lakshminarasappa, Mr. N. Subba Rao, Mr. B. Krishna Rao, Mr. J. V. Mascarenhas, Mr. J. V. Karve, Mr. F. Fernandez, Mr. B. Krishnamurthi Rao, Mr. C. Narayana Rao, Mr. M. G. Srinivasa Peidpett, Mr. P. Parthasarathi, Mr. R. Gopalaswami Iyer, Mr. H. R. Krishnamurthi Rao and Mr. B. Narasinga Rao.

3. The Proceedings commenced at 8 A.M. on Saturday when the Sanitary Commissioner delivered the opening speech to the Conference. Afterwards, Mr. M. A. Narayan Ayangar, Deputy Commissioner, Shimoga District, spoke in appreciative terms about the objects of the Conference. He hoped that that the Conference, which was started with a modest beginning, would in time find for itself a place not less important than that of the Departments of Industries, Education, Agriculture and Co-operation. Although the Sanitary Section formed a feature of almost every District or Taluk Conference, a Central Departmental Conference was, he said, vital in the interests of sanitary progress as a whole in the State. He suggested the formation of a Standing Committee of the Sanitary Conference to take stock of the sanitary needs from time to time and give continuous attention in order that the conclusions presented at each Conference might, under orders of Government in each case, be actively developed to form part of the sanitary policy in the State.

Raja Sabha Bhushana Dewan Bahadur Mr. K. P. Puttanna Chetty, C.I.E., in summing up the present situation referred to the great advance made from day to day in our knowledge about the origin and mode of spread of communicable diseases, plague, cholera, tuberculosis, and malaria and indicated the scope of work of Sanitary Conferences, which he thought should form a permanent feature of the sanitary administration in Mysore.

4. The undermentioned papers submitted by the departmental officers were then taken as read and discussions on the various subjects proceeded with. A list of the subjects, a summary of the discussions and the resolutions passed will be found in the appendix to this memorandum.

(1) Gleanings from work in the Public Health Department of Kolar Gold Fields by Mr. J. V. Mascarenhas, M.B., D.P.H.
(2) A few observations on the Public Health conditions of Kadur District by Mr. B. Krishna Rao, L.M.S., L.S.Sc., District Health Officer.
(3) An Indian Creche in Bangalore. (A reprint of the contribution to the Indian Medical Gazette on the subject by Mr. S. Amritraj, L.R.C.P. & S., D.P.H.)
(4) Note on the appointment and duties of Lady Health Visitor, Civil and Military Station, Bangalore, by Mr. S. Amritraj.
(5) The need for State Legislation to control untrained practising midwives in India with a few observations on the importance of promoting Maternity and Infant Welfare, by Mr. S. Amritraj, L.R.C.P. & S., D.P.H.
(6) Medical inspection of school children, by Mr. J. V. Mascarenhas, M.B., D.P.H.
(7) Village improvement, by Mr. J. V. Mascarenhas, M.B., D.P.H.

5. At the close of the discussions on Sunday the 23rd June 1918, the Sanitary Commissioner concluded the session with a short speech thanking the Heads of Departments and of Districts present, for their co-operation.

APPENDIX I.

OPENING SPEECH BY THE SANITARY COMMISSIONER.

I beg to offer you all a cordial welcome to this Conference. In this enlightened age it is unnecessary for me to justify the holding of a Conference like this, which brings together all people interested in sanitation, enables them to exchange views, provokes them to discussions, lets in fresh light on various topics from unexpected quarters and leads them to find a way out of many a difficulty which at first sight appeared to be insuperable.

It is not quite sixteen months since the Department of Public Health was organized as a separate entity and in this short period, the Province has passed through two severe epidemics of cholera and one of plague. The officers connected with the Public Health Department had a very trying time of it and their efforts in combating these epidemics had a gratifying measure of success. Their experiences will doubtless from a valuable record but they are all hidden in official files which have no chance of seeing the light of day. Each one of them is bound to have met with difficulties and must have overcome them somehow or other. On occasions like this, when freed from official trammels, a recital of successes and failures will be to the mutual benefit of all concerned.

Our conception of public health has undergone considerable change during the last decade. In my student days, we were taught that disease arose from bad surroundings, that general good health was a sufficient protection against infection by specific disease and that sanitation was concerned with attention to general cleanliness of the environments. But the results of recent medical research have changed all this and attention is now concentrated more on the individual and less on the environments. The term "disease carrier" has not only permeated the thoughts of medical men and sanitarians but has filtered down even to the educated laymen. In the case of all communicable diseases, the source of infection is man or some other animal and till the route by which infection is disseminated is demonstrated, all the efforts of sanitarians to check the spread of disease are bound to fail and entail waste of money.

It has been known that water is the chief medium through which cholera vibrio is transmitted from the cholera carrier to healthy men. But in the last epidemic that we had at Mysore City, the part which flies played in the transmission of cholera vibrio, mechanically from the excreta to the food of men, was well demonstrated; therefore, our efforts towards checking an epidemic should not be confined only to the treating of water supplies with potassium permanganate but should extend to the prevention of the breeding of flies. Last year there was a phenomenal number of flies in various parts of Mysore City but it has not been so this year. The Health Officer of Mysore will doubtless furnish an explanation. Again, in our dealings with this epidemic the scarcity in these times of war of potassium permanganate was much felt in various places. The quantity available was not sufficient to meet all demands and the price of the drug also went up abnormally. Therefore, faced with this problem, we had recourse in many places to the use of quicklime which was found to be almost as effective as potassium permanganate. The use of quicklime has this advantage over that of potassium permanganate, that it does not impart any colour to the water and thus scare away some foolish people to more dangerous sources of water supply. The Presidents of District and Taluk Boards and of Municipalities, when threatened without outbreaks of cholera, should keep a stock of quicklime sufficient to meet all likely demands and disinfect all wells which are in danger of becoming infected. The protection of wells by fitting them with hand pumps has been advocated many times but has not been carried out except in two places so far as I know. In one of them, the handle of the pump had been taken away during the time of my visit and in the other, it was being fairly worked. All the frontier villages which are exposed to cholera invasion must have the drinking water wells protected by pumps.

A question that deserves consideration is the influence of jatras in starting cholera epidemics. The jatra at Mahadesvaranbetta in the Coimbatore district last year and that at Yediyur in Tumkur district this year are fearful examples of what jatras can do in starting and spreading cholera epidemics. Proper precautions ought to be taken, many days previous to the commencement of the jatras, all wells being quicklimed or permanganated and all heaps of manure and night soil being so disposed of as not to breed flies.

It may not be out of place to mention here that the chief burden of prevention of cholera and other epidemics falls, as it ought to fall on the Revenue Officers of the districts and taluks. In most cases they cheerfully help the officers of the Public Health Department in preventing the spread of the disease. But while acknowledging the assistance given by the great majority, I ought not to omit a reference to a few who think that their duty in epidemic times ends with giving the information to the officers of the Public Health Department. Our Departmental officers are purely advisory in their functions and have no executive powers; and if the executive officers stand by with folded hands, we can accomplish but little in preventing the spread of the disease.

Turning to plague, which is the other great disease which periodically, almost annually, visits various parts of our Province, I may say that our ideas of prevention of epidemics of this disease have undergone a remarkable modification in view of the recent researches by the officers working under the plague advisory committee appointed by the Government of India. It has been proved that the rat-flea is, in the very great majority of cases, the only medium by which plague bacilli are transferred from the rat which is the chief "plague carrier" to the human being. The best way of avoiding plague is to construct rat-proof buildings and to live so as not to come into contact with susceptible animals belonging to the Rodent Family. But when this is unattainable, the next best thing to do would be to destroy rat-fleas which desert the dead bodies of rats and remain infective for six or seven weeks. This is very easily done by the spreading of paddy straw or any other inflamable material evenly on the floor of every part of the house and setting fire to it. The fleas and in fact all vermin of that kind are killed in the course of a few minutes and the house becomes habitable again immediately afterwards. Instead of having recourse to this simple method, people wait till human cases occur and then when too late, evacuate the houses and camp outside the fields for periods extending from three to six months They have been encouraged to do this in the past and when now they are asked to desiccate their houses before they lock them up, they consider themselves as very ill-used. If wholesale evacuation is throughly carried out, no sanitarian would object to it, though he might feel pity for the deluded people who put themselves to trouble and expense unnecessarily. But what really happens is that the locked-up houses are frequently visited by the owners either openly or secretly. In either case, the infective fleas which remain alive and hungry, bite the men that come into the house and infect them with plague bacilli. The people who then go back to the sheds get plague and their relations and freinds hold up their hands in horror and proclaim that evacuation of houses and camping out are no good. Very many actual instances can be cited of villagers evacuating their houses and reoccupying them within a month or so without disinfecting them and suffering severely from plague as a consequence. Human bubonic and septicaemic cases, which are really harmless from the point of view of the spread of the disease to others, are feared, while the dangerous rat-fleas are taken no account of. The only remedy for this state of things is to dispel ignorance and place the correct facts before the people.

A third disease which is ever present with us and which carries off more people than all the epidemic diseases put together is malaria. Here again the chief enemy we have to contend with is ignorance on the part of the populace. Medical research has shown the methods of spread of malarial parasites and of the means to check it, but very little has been attempted and much less accomplished in the way of lessening the incidence of malaria. Malarial Surveys, which are absolutely necessary for the collection of requisite data, have been completed in the case of Seringapatam and are in progress in selected villages in Nagar taluk. The proposals for the abatement of malaria in Seringapatam are before the Government and orders are awaited. It is not the malnad portions alone that are malarious, but many of the maidan parts are quite as bad. Statistics show that places like Arsikere, Tiptur, Maddagiri, etc., are becoming more and more malarious and in Arsikere a large number of deaths from a malignant type of malarial fever was noticed last year. This is an ever present problem and can be dealt with only by concerted and continuous action on the part of District Boards and Municipalities, and by the maintenance of anti-malarial operations as a routine part of their work. Work by fits and starts effects very little good and is to be deprecated wherever found.

Tuberculosis in its manifold forms is the curse of advancing growth of cities. Overcrowding, poverty and drunkenness are the evils inseparable from an urban life and all persons whose resisting power is lowered by these adverse conditions fall victims to the ubiquitous tubercle bacilli. The construction of a sanatorium for the use of these afflicted persons merely touches the outer fringe of the evil when it has become irreparable. The real solution consists in improving the housing accommodation of the poor people, removing from their close proximity the temptation to drink and in encouraging the people to spend more of their wages on food and less on drink, if the latter cannot be altogether abolished. The establishment of a tuberculosis dispensary in each of the cities of Bangalore and Mysore is very essential if any good is to be expected from the sanatorium.

Another great problem which has always faced us is the terrible infantile mortality. The causes are well-known but the remidies still remain to be applied.

I wish to refer to one other disease which is of peculiar interest to the State as a whole and to some parts of malnads in particular, venereal disease, *e.g.*, syphilis and gonorrhoea which are said to prevail most extensively both in males and females. The gradual diminution of population in the malnads may not only be due to malaria and its sequelae but to the prevalence of venereal diseases which play an important part in preventing conception, in causing premature births and abortions and in increasing the deaths of infants. I wish that those of you who may have studied the question nearer at home may be able to contribute to our discussions on this subject. All practical suggestions for the treatment and prophylaxis of these dire diseases will be welcome.

In this connection, it might be said that for the State to concern itself with such topics is an unwarranted interference with private individual rights. The term "human rights" sounds well but has no basis in fact. The 20th century recognises only inalienable duties rather than rights and the duty of preserving health is one of these. Free conduct is impossible as long as there is more than one man in the world. Every man's health is not his own private possession to be regulated as he sees fit. If the loss of such a man's health affected no one but himself, we should not quarrel with such a view. The prosperity and comfort of society are altogether dependant upon the health and

strength of its individual members and all those who become physically incapacitated lessen the total efficiency of the whole community. Therefore the preservation of private health of the individual is a matter of public concern and any Government will be justified in interfering with the so-called " private rights ", when the interests and welfare of the community are concerned. Thus compulsory incarceration of offenders, compulsory payment of taxes, compulsory education, compulsory medical inspection of school children and compulsory vaccination have all been enforced and are acquiesced in. Why therefore should not the spread of diseases like syphilis and gonorrhoea be brought under control by the adoption of measures such as supervision of prostitutes and compulsory registration and treatment of all prostitutes ?

Though I have touched only a few of the subjects which appeared to me to be important, it must by no means be thought that the others are of any less importance. I hope that the discussions thereon will throw a flood of light on them and enable us to deal with them in a practical way.

I beg to conclude with these words of the late Sir Pardy Lukis.

" Our main efforts ought to be centred on the protection of the community against attack by infectious diseases rather than on the attempt to cure individuals of ailments from which they ought never to have suffered."

APPENDIX II.

LIST OF SUBJECTS BROUGHT FORWARD BEFORE THE SANITARY CONFERENCE.

1. Control of cholera epidemics.
2. Do plague epidemics.
3. Malarial Surveys and application of anti-malarial measures.
4. Legislation to ensure a pure food supply especially of milk and milk products.
5. The necessity for the introduction of compulsory vaccination throughout the State.
6. Popular education in public health matters.
7. Systematisation in the improvement of rural water supplies.
8. The problem of housing the poor in Bangalore and Mysore Cities.
9. Town planning for all Urban Areas in the State.
10. Establishment of Tuberculosis Dispensaries and of a Sanatorium in a specially selected locality.
11. Ankylostomiasis in the Malnad and in the Maidan parts of the State.
12. Prevalence of venereal disease in parts of the malnad and its relation to the deterioration of the people.
13. Control of infantile mortality.
14. Formation of a standing committee and issue of a quarterly public health journal under the auspices of the Conference.

APPENDIX III.

SUMMARY OF DISCUSSION.

SUBJECT No. 1.—Control of Cholera Epidemics.

Mr. Matthan referred to the part played by flies in the spread of cholera and enquired how best the fly pest could be minimised. He also suggested that legislation might perhaps be necessary to enable the executive officers to enter premises and prevent conditions that favour the breeding of flies.

Mr. J. V. Karve observed that cholera was the result of filth and flies. He gave his own personal experiences in the matter of the prevention of the breeding of flies and was of opinion that each individual should exert himself to safeguard the community as a whole. He deprecated any legislative measures and believed that persuasion would effect more good. He urged greater attention being paid to the general sanitation and particularly the conservancy of suburban villages.

Dr. E. S. Krishnaswami Iyer suggested that the best way to prevent breeding of flies would be to cover up all manure heaps with a layer of earth. He was in favour of having the pit system in villages provided that the wells were not endangered by their proximity to the pits.

Mr. Zahiruddin Meccai observed that the question of dealing with manure in villages was attended with difficulties and that it was hopless to expect the villagers to cover up the manure with earth. He also explained a design for a moveable latrine for use in connection with the trench system in villages.

Mr. C. S. Balasudaram Iyer said that manure was a valuable and indispensable commodity to the villagers. As it was impossible to expect the raiyats to carry the manure to a distance and cover it up by earth, he suggested that a plot of ground near to the village should be parcelled out into spaces for the storing of manure. For the disposal of night soil in a village, the trenching system appeared to him to be the best. He also advocated the systematic fitting up of pumps to wells in the villages exposed to attacks of cholera.

Mr. K. R. Srinivasa Iyengar was in favour of the education of people for the local adoption of preventive measures.

The Conference adopted the following resolution for submission to the Government :-

I.

(*a*) Water supplies along trade routes should be protected against contamination.

(*b*) Whenever a village becomes infected with cholera, notices of the outbreak in that village should be put up in the *chavadies* of surrounding villages.

(*c*) Every village should be provided with a plot of ground parcelled out into small areas for the storage of manure. As far as possible the villagers should be instructed to keep the heaps of manure covered by fresh earth.

(*d*) The taluk and hobli headquarters should have a stock of potassium permanganate and of quick-lime for disinfecting wells.

(*e*) The suburban villages should receive special attention so as to minimise danger of infection of towns and cities.

(*f*) A proper staff should be maintained for cholera prevention duty in each district.

SUBJECT No. 2.—Control of Plague Epidemics.

Dr. Krishnaswami Iyer emphasised the need for directing attention towards controlling the disease at the tail—end of the epidemic with a view to limit the chances of the infection being carried through the next generation of rats to start a new epidemic under favourable atmospheric conditions. He said that, rat destruction as a means of preventing plague could be effective only in the off-season.

Mr. K. Mylar Rao suggested that, according to a circular recently issued by the Government of India, extermination of rats could be undertaken at all times.

The President explained that the best results at a small cost were attainable only in the off-season.

Mr. B. Krishnamurthi Rao said that in Japan a day in the week is set apart for tidying up houses and killing off rats. If some such arrangement could be enforced here, appreciable good might result.

Mr. C. S. Balasundaram Iyer suggested that the executive officers of the Sanitary Department might consider what rules were feasible.

Mr. M. A. Narayana Ayangar then referred to disinfection. He said that if disinfection could be promptly resorted to on the occurrence of rat mortality, the need for entire villages and towns having to be shifted to temporary huts would cease. Wholesale evacuation of infected villages could be totally avoided and the people saved the expense, the inconvenience and the anxiety incidental to the temporary enforced life in sheds. The whole matter was, in his opinion, one of popularization

of the ideas underlying disinfection. At the same time, the question was intimately associated with that of keeping the premises rat-free both as a measure of permanent utility as well as as a sequel to preserve the efficacy of the disinfection.

Mr. J. V. Karve recommended that in suburban areas the construction of rat-proof houses should as far as possible be insisted upon.

Mr. K. Matthan in referring to the different agencies, Revenue, Medical and Sanitary expected or employed to take action to combat epidemics, pointed out the desirability of co-ordinating their various duties to prevent overlapping of functions and consequent diminution in efficiency.

The resolution to be recommended to the Government is as follows :—

II.

(*a*) The systematic destruction of rats particularly in the off-season of plague should be aimed at,

(*b*) disinfection by the process of desiccation should be popularized,

(*c*) wholesale evacuation of villages should not be enforced,

(*d*) rat-proofing of houses should be encouraged,

(*e*) the existing plague rules, which were framed in 1898 should be suitably amended and brought up-to-date.

SUBJECT No. 3.—*Malarial surveys and application of anti-malarial measures.*

The President observed that a Malarial Survey was only a means to an end. By itself it was of no use whatever in checking malaria. It simply serves to furnish data on the basis of which the anti-malarial measures were to be framed.

Mr. J. V. Karve recommended that malarial surveys should be undertaken in selected areas in each district and that the application of anti-malarial measures should be started immediately on the completion of the survey in each place.

In reply to Mr. M. A. Narayan Ayangar's enquiry as to the practical utility of one survey already carried out, *viz.*, that at Seringapatam, the President explained that before the survey was instituted the shifting of the town from its present surrounndings was seriously proposed as the only remedy for the prevailing unhealthy conditions. The actual survey showed that the chief breeding places of mosquitoes wre the numerous unused wells and karanjis in the town. The expenditure of less than a thousand rupees on the preliminary scientific study of the local conditions had thus saved large sums of money which otherwise might have been spent on the "improvements" proposed. On the positive side also the survey indicated precisely what detailed measures were necessary to reduce the prevalent unhealthiness.

The following resolution was adopted :—

III.

This Conference is of opinion that malarial surveys should be undertaken in a few of the typically unhealthy tracts in each district, that the Government be requested to depute some of its sanitary officers for training in Tropical Schools and that when any surveys are finished and recommendations regarding the anti-malarial measures are submitted, prompt and continuous action be taken.

SUBJECT No. 4.—*Legislation to ensure a pure food-supply especially of milk and milk-products.*

The President observed that this was an important subject to which he made no reference in his introductory address. It was well recognized that food-stuffs were adulterated and very often to the detriment of the health of the consumers. Adulteration of food-stuffs was practiced as a fine art in European Countries in spite of legislative enactments and heavy fines imposed by the Magistrates. Merchants in India were not very far behind in the matter of the mixing of undesirable things with food-stuffs but there was no law by which the offenders could be punished. Any admixture which was noxious to health could be brought under the provisions of the Penal Code but most of the substances used for adulteration could not be brought under that head and the offenders escaped scot-free. The only thing for which they could be punished was for selling an article which was not what it was represented to be. Thus if any man asked for ghee and was given a stuff which was mixed with animal or vegetable fats, the buyer could prosecute the seller for trying to sell him an article which was not what it purported to be. But if the seller said that what he sold was not pure ghee but a mixture of ghee with foreign fats, the buyer might refuse to buy it but had no legal remedy. There was hardly an article of diet which was not adulterated in some way or other; but without any legislative enactments it was hopeless to check this evil. Many of the members of the Conference were Magistrates and had occasionally to deal with such cases and a clear expression of their opinion as to what was desirable would strengthen the hands of the Government in dealing with the problem.

All present were unanimous in the opinion that legislation was necessary, particularly as regards milk and milk-products, *e.g.*, ghee.

Questioned as to why, when milk could be boiled and rendered sterile before use, any legislation

was called for, the President remarked that milk deprived of its nutritive elements was of little value as food and that its purity chemically had also to be assured.

Mr. Rangaswamy Iyengar suggested that legislation might extend to cows to prevent the sale of milk taken from tuberculous cows.

The following Resolution was adopted :—

IV.

This Conference is of opinion that the Government should be approached to legislate in the matter. Legislation may be on the lines of the English Food and Drugs Act, Milk Regulation, Butter Act, etc. Standards should be fixed for milk, butter, ghee, etc.

SUBJECT No. 5.—The necessity for the introduction of Compulsory Vaccination throughout the State.

The President remarked that he believed this was a subject on which there could be no two opinions in this Conference. During a recent outbreak of small-pox in Kalale a large number of children died. The disease stopped as soon as the remaining children were vaccinated. In most of the municipal towns vaccination had been made compulsory and the value of the measure was recognized by the majority of the urban population. It was however different in rural areas especially of the malnads. Practically every one of the Amildars with whom he had had a talk on the subject was in favour of vaccination being made compulsory in all the rural parts. Now that the re-organization of the subordinate staff of the vaccination department has been effected and provision made for the proper supervision of the work of the vaccinators, there ought to be no difficulty in enforcing vaccination all through the State.

Mr. J. V. Karve explained how since the introduction of the compulsory regulation small-pox has practically been stamped out in England, Japan and other advanced countries. Children were an asset to the country and every effort should be made to prevent loss of infant life. He urged the compulsory vaccination of children within six months after birth and compulsory revaccination in the eighth year and again in the twelfth year. The occasional fatal cases and bad results need not stand in the way as they were due to faulty methods of vaccination and had nothing to do with the lymph. He suggested that if necessary a conscientious objector's clause may be added in the regulation.

Mr. B. Krishna Rao pointed out that vaccinators are hardly to blame when parents themselves neglect the vaccinated children or smear the vesicles with cow-dung. He was however of opinion that arrangement should be made for the better preservation of the lymph.

Mr. Zahiruddin Meccai urged that until the department is satisfied of the absolute purity of the lymph the compulsory regulation ought not to be introduced. If any improvements were to be effected by means of the compulsory law, suitable preliminary action must be taken by the Department.

Dr. Amritraj thought that cases of children dying after vaccination were, almost as a rule, the result of neglect on the part of parents. He compared lymph obtained from Guindy, Belgaum and Bangalore and found the local lymph gave very good results. To say that vaccination should not be made compulsory on the mere apprehension that lymph might fall short of the standard of purity was very unreasonable. Vaccination might, in his opinion, be made compulsory in sections if not for the entire State.

The following Resolution was adopted :—

V.

This Conference is of opinion that compulsory vaccination and revaccination should be introduced throughout the State.

SUBJECT No. 6.—Popular Education in Public Health matters.

The President remarked that ignorance was the chief obstacle to the progress of Sanitation. There was, he thought, hardly any doubt that most of the religious observances of the Hindus were originally based on principles of Hygiene. As in most mundane things, the spirit in which the ordinances were originally framed was lost sight of and the letter followed with disastrous results. The present conditions and environments were different from what they were in the times of Manu and all thinking people recognized the necessity for adaptation. The only way to sanitary salvation was through the enlightenment of the masses. It was his experience that unsophisticated villagers were more susceptible to reason than the self-satisfied townsmen. Something in the way of popular lectures, demonstrations and exhibitions had been attempted but with no very striking results. The President invited any further suggestions on this topic.

Mr. M. A. Narayan Ayangar said that simple songs in Kannada on health subjects, such as the ones composed by Mr. Karve should be prepared and distributed widely. He also recommended lectures and discussions of sanitary matters in all Taluk and District Conferences.

The following Resolution was adopted:—

VI.

This Conference is of opinion that:—

(*a*) all teachers employed in schools should have undergone a course in Sanitation and Hygiene,
(*b*) a course in Hygiene and Sanitation should be made compulsory in elementary schools,
(*c*) leaflets on Hygiene and Sanitation, preferably in the form of simple songs, should be published and itinerant lecturers appointed,
(*d*) Health Exhibitions and Demonstrations should be held periodically,
(*e*) Health Museums should be established in all District Headquarter Towns and
(*f*) Lectures on Sanitation should be arranged for and sanitary subjects discussed at every Taluk and District Conference.

SUBJECT No. 7.—Systematisation in the improvement of rural water supplies.

The President said that this was an extremely important subject which had evoked much talk but small result. The question of combating cholera and incidentally of diarrhoea, dysentery and worms was closely connected with the improvement of water supply. When the supply was from draw wells it was much easier to deal with than if from step wells, hondas, tanks, streams and rivers.

Mr. B. T. Kesava Iyengar thought that a systematic programme should be drawn up in the order of urgency and of importance of the villages so that ultimately every village might have at least one well fitted with pump. The cost should preferably be debited to local funds and in every case the approval of the Sanitary Commissioner should be obtained.

Mr. M .A. Narayana Ayangar referred to the difficulty for a layman to decide the type of pump suitable in each case. He said that his own experience was that in 5 or 6 villages in which pumps were tried they soon got out of order.

Messrs. B. Subba Rao and J. V. Karve then explained how Myer's pumps could easily be set right.

VII.

The following resolution was adopted:—

This Conference is of opinion that a definite programme of improvement should be framed and that as far as possible ten villages in each district should be fitted up with Myer's pumps every year.

SUBJECT No. 8.—The problem of housing the poor in the Bangalore and Mysore Cities.

The President introduced the subject with the remark that it was one that had received but little attention although very important. He was familiar with housing conditions in Bangalore and believed that they were more or less similar in Mysore. There could be no question that some definite action was called for in the interests of both public health as well as the aesthetic improvement of the cities. In Bangalore City there were a large number of millhands who came largely from the adjacent tamil districts in the Madras Presidency. They had no wish to settle in Bangalore and very often lived without their families. They were wage earners, pure and simple and most of their wages were sent to their families outside the State. They spent as little as possible and did not pay more than a rupee or a rupee and a half in the shape of house-rent. Many of the houses in Arlepet and other places in the neighbourhood of the Railway Station were occupied by these Tamilians and in each house there were as many tenants as there were rooms so that a house that could accommodate six persons was found to have any number between twenty-five and thirty. The problem of housing these people had to be considered by the Municipality as well as the large employers of labour, *viz.*, the Railway Company, Messrs Binny & Co., etc. The European employees of the Companies were provided with quarters but the Indian labourers were allowed to shift for themselves. The evils of overcrowding were well known and the President invited suggestions in dealing with the problem.

Mr. J. V. Karve observed that the appointment of City Improvement Trust Boards did not touch the problem to any appreciable extent.

Mr. N. Subba Rao explained that what was needed was the construction of a large number of houses for the accommodation of the poor. He recommended that facilities should be created for the supply of building materials at cost price to *bona fide* builders among the poor classes. At the same time the tendency for speculation in the matter of building-sites should be checked by fixing an upset price on them instead of giving them away in public auction. This latter recommendation was supported by several others present.

Mr. M. A. Narayana Ayangar referred to the desirability of making arrangements to provide either houses or suitable sites not far distant from the cities for people displaced consequent on the demolition of a large number of houses taken on hand for one reason or another. Co-operative methods might easily be applied or the Trust Board itself might undertake the construction of houses which might be let out on the rent-purchase system. In any case, a definite allotment of funds should be made annually by Government and a suitable plan of work and procedure devised.

After further discussion the following resolution was adopted :—

VIII.

This Conference is of opinion that

(*a*) congested areas should be opened out, special facilities being given to displaced men.

(*b*) as far as possible suitable dwellings for the working classes should be constructed in the areas opened out, such houses being rented out, sold on hire purchase system or sold outright.

(*c*) the present method of giving only loans through the Trust Boards has not been sufficient and should give place to a better arrangement.

d) large employers of labour should be required to provide housing accommodation for their employees, reasonable facilities therefor being offered by the Municipalities aided by Government, and,

e) a definite allotment of funds should be made annually towards encouraging the co-operative movement in house building, construction of model sanitary houses and provision of dwellings for sale on the rent—purchase system.

SUBJECT No. 9.—Town Planning for all urban areas in the State.

The President remarked that the question was intimately connected with the one immediately preceding. If accommodation of a satisfactory kind were provided for the class of persons who now flock to the cities in search of employment, the slums could be easily taken on hand and systematic efforts made to adhere to any approved scheme for town planning. It was a matter wherein the co-operation of engineers and architects was necessary.

Mr. M. A. Narayana Ayangar said that a special Engineer should be appointed to draw up plans for towns and for all urban areas generally. He suggested the operations being classified into three grades : for District Headquarters, for Taluk Head quarters and for Rural areas. He thought that the co-operation of the members of the Representative Assembly might be enlisted in the matter with advantage.

After discussion, a Resolution as follows was adopted :—

IX.

This Conference is of opinion that Town Planning Schemes should be taken up, arranged in three grades (1) for District Headquarters (2) for Taluk Headquarters and (3) Villages.

SUBJECT No. 10.—Establishment of Tuberculosis Dispensaries and of a Sanatorium in a specially selected locality.

Mr. J. V. Mascarenhas introduced the subject with the remark that tuberculosis was largely prevalent in the congested portions of cities and of the larger towns. He explained that efforts for its prevention should be directed towards detecting early cases and taking such action as is calculated not merely to cure the patient but also to lessen the chances of his conveying the disease to others. The individual attention and close watch necessary for the purpose, without at the same time having to resort to the extreme measure of isolating all tuberculous patients in the area, could be secured only by the employment of a special medical officer, with a dispensary in his charge, to find out and suitably deal with cases of tuberculosis. He added that a Laboratory should be attached to the dispensary so as to facilitate the systematic examination of sputum for confirmatory purposes.

Mr. E. S. Krishnaswami Iyer, in supporting, said that in dealing with the question of tuberculosis in its relation to the community as a whole, the aim should be the effective control of the disease rather than the medical treatment of individual patients. He also referred to the danger of infection being spread by dogs.

The President remarked that according to the recorded statistics one in 50 persons in the Bangalore City and one in 40 in the Mysore City harbour tubercle bacilli in their bodies. It was therefore time that the control of the disease was taken on hand. A sanatorium by itself was of little value unless at the same time it served as a complementary institution to the special tuberculosis dispensaries. He explained the fundamental difference between an ordinary dispensary and a tuberculosis dispensary, which consisted in the medical officer in the case of the latter being required to pay a house to house visit in search of cases instead of merely keeping the dispensary open for the benefit of those that sought treatment.

After discussion, a Resolution as under was passed :—

X.

This Conference is of opinion that the treatment of patients in a sanatorium being by itself not conducive to check the spread of tuberculosis, tuberculosis dispensaries, which are essential for the detection and treatment of early cases, may be established in the midst of congested areas in the Bangalore and Mysore Cities.

SUBJECT No. 11.—*Ankylostomiasis in the malnad and in the maidan parts of the State.*

Mr. M. G. Srinivasa Peidpett explained the ætiology of the disease and said that the symptoms were hardly different from those of malaria. In fact ankylostomiasis it was often mistaken for malaria and treated with quinine. To his knowledge, the disease occurred in parts of Mandya, Hunsur and Krishnarajpete.

Mr. Parthasarathi said that the disease prevailed in Soralakoppa, a village in the Shimoga district, where 17 cases were treated.

Mr. J. V. Karve related how the accidental examination of stools of men in the malnad revealed hook-worms. He suggested the appointment of a special officer with a view to ascertain where and to what extent the disease prevails, what the special local conditions are that favour its prevalence and whether the practice of earth-eating said to prevail in certain parts of the Mysore district is responsible for or contributes towards the occurrence of the disease.

The following Resolution was passed :—

XI.

This Conference is of opinion that the special study and investigation into the prevalence of Ankylostomiasis (or hook-worm disease) deserves to be taken up immediately in Hunsur, Krishnarajapete, and Mandya Taluks and three more malnad taluks to be selected later on.

SUBJECT No. 12.—*Prevalence of venereal disease in parts of the malnad and its relation to the deterioration of the people.*

Mr. P. Parthasarathi in moving the subject said that his own impressions based on what he saw as District Sanitary Officer, Shimoga District, were that venereal disease prevailed to a large extent in certain parts of the district and contributed not a little towards infant morality, still-births and a general decline in the physical efficiency of the people. The problem was complicated by the operation of various social customs and rules, one amongst which was what is known as the Terrai system. Under this system only the eldest son could marry and the younger sons naturally resorted to bad ways. In Sagar out of a total of about 700 houses, 250 were inhabited by prostitutes. Such widespread prevalence of immorality reacted on the normal family life and resulted in the spread of venereal diseases, abortions and high infantile mortality. These circumstances, he thought, justified a detailed enquiry being taken on hand immediately.

Mr. B. Krishna Rao presented certain hospital statistics which showed that on an average ·27 per cent. of the cases treated in the hospitals and dispensaries of the Kadur district were for venereal complaints.

Mr. Zahiruddin Meccai pointed out that all such figures must be considered with reference to the population of each local area. A comparative table of the number of prostitutes in each of the towns in proportion to population might, he thought, be found useful. He recommended that a detailed survey for venereal complaints may be carried out in typical towns.

As regards practical remedies, he advocated the dissociation of houses of questionable repute from towns or cities proper and the resulting attachment, by implication, of a sense of dishonor in frequenting these localities. He recommended the licensing of prostitutes.

Other suggestions considered were the introduction of sex education in schools and colleges, the education of the masses in sex morality and the provision of special facilities for the treatment of venereal diseases in men and women.

After discussion, the following resolution was adopted :—

XII.

This Conference is of opinion that there is sufficient basis to justify an enquiry being held to determine the extent of prevalence of venereal diseases in the State, especially in the malnads, and that for this purpose typical towns like Sagar, Tirthahalli, Davangere and Chikballapur may be selected.

SUBJECT No. 13.—*Control of Infantile Mortality.*

Dr. Amritraj said that some of the causes for the heavy infantile mortality that prevails in the State particularly in large towns were bad midwifery, aid or absence of such aid altogether, neglect of children due to want of experience or blind adherence to traditional customs and improper feeding of infants. The wastage of infant life was largely preventable provided only that the prevailing crude notions among the people gave place to rational ideas and methods. All measures directed towards improving matters in this respect must also aim at serving as object lessons tending to the formation of altered habits among the people. He gave an account of the efforts made in the Bangalore Civil and Military Station Municipality, how they had established a creche for looking after children and had also appointed a Lady Health Visitor. He said that the supply of pure milk for the use of children and the appointment of a larger number of trained midwives would mitigate infantile mortality to a very considerable extent.

Dr. J. V. Karve urged the establishment of nursing institutions in all municipalities particularly in the malnad districts.

The President suggested that creches might, to begin with, be established in the Bangalore and Mysore Cities and on the Kolar Gold Fields. As regards Lady Health Visitors he said that only women could understand women. An arrangement whereby medical advice by a competent Lady Medical Officer is readily made available to all women needing it would be of incalculable value. The Lady Health Visitor systematically visits every house with a view to give particular attention to women in delicate health, nursing mothers and infants, mingles with the women, infuses correct ideas among them and gives medical advice. She should be well-paid and provided with free quarters in a central locality.

The establishment of milk depots controlled by the Municipalities for the supply of pure milk for children was another proposal worth serious consideration.

Mr. M. A. Narayana Ayangar suggested that an appeal might be made to the generosity of philanthropic gentlemen to establish creches and milk depots.

Mr. Zahiruddin Maccai recommended that these measures might be extended to all district headquarter towns and that itinerant Lady Health Visitors may be appointed for selected rural areas as well.

A Resolution as under was adopted :—

XIII.

This Conference, while recognizing that heavy infantile mortality is prevalent all throughout the State, is of opinion that a beginning should be made to check it in the Cities of Bangalore, Mysore and Kolar Gold Fields by the adoption of the following measures for the present :—

(1) Appointment of Lady Health Visitors,
(2) Establishment of creches, and
(3) Supplying at cost price pure and sterilized milk for the use of the childern.

SUBJECT No. 14.—Formation of a Standing Committee and issue of a quarterly Public Health Journal under the auspices of the Conference.

The members were unanimously agreed on this subject and adopted a resolution as follows :—

XIV.

This Conference is of opinion (1) that a Standing Public Health Committee constituted as under should be appointed with Headquarters at Bangalore and (2) that a quarterly Public Health Journal should be issued under the auspices of the Sanitary Conference.

The Sanitary Commissioner—*President.*

The Assistant Director, Public Health Institute—*Secretary.*

The Health Officers of Bangalore and Mysore Cities, Dr. S. Amritraj, Mr. Lakshminarasappa, Mr. J. Bhore, the District Sanitary Officer, Shimoga, and one non-official member—*Members.*

CONCLUSION.

The discussions were concluded with the following remarks by the Sanitary Commissioner :—

I am glad that we have been able to get through our programme of work this session. The discussion on various subjects has thrown a flood of light on various obscure points. The recommendations that we are submitting to the Government relate to matters of pressing importance. As regards the control of a plague epidemic, the resolution of the Government of India was that wholesale evacuation of villages is neither necessary nor desirable. The Executive Officers will no doubt, in view of this, take such measures as the Conference has recommended, *viz.*, the immediate disinfection of houses by desiccation after the appearance of a dead rat. Wherever possible the larger Municipalities should insist on all new buildings being made rat-proof. Our freedom from plague seems to depend upon our keeping away from the vicinity of rodents as much as possible.

The Conference has emphasised the necessity of taking continuous measures against malaria all throughtout the year, in accordance with the data revealed by the preliminary malarial survey.

The recommendations of the Conference in regard to the prevalence of venereal diseases and of ankylostomiasis in various parts of the Mysore are very timely. Next year, if we ever meet again, we shall consider the questions of remedial measures against these diseases.

To control infantile mortality in large cities we have made very modest suggestions which the local bodies must carry out.

Rural water supplies come under the purview of the District and Taluk Boards and the adoption of measures we have suggested will go a great way towards giving the rural population a fairly safe water supply.

The questions of housing the poor and of townplanning have been dealt with and I feel that unless the Government comes forward with funds for the building of workmen's dwellings near the sites of their employments, no other agency can cope with the problem.

The necessity for tuberculosis dispensaries rather than of sanatoria is now-a-days well recognized. The Medical Officers conducting these dispensaries will deal with the very early cases and prevent the spread of the disease, while sanatoria attempt to lessen the sever of the disease when it has passed beyond the stage of cure. The local bodies should deal with this problem and may receive grants-in-aid from the Government.

I am thankful to the Heads of Districts for having so readily responded to my invitations and giving us the benefit of their advice and experience. I trust that a greater co-operation with the Public Health Officers and a free interchange of views will tend to a better condition of sanitary administration than any number of official communications. I am grateful to all of you who have made the holding of a Conference like this possible and look forward to a similar reunion next year.

APPENDIX IV.

PAPERS PRESENTED BEFORE THE SANITARY CONFERENCE

(1) Cleanings from work in the Public Health Department of Kolar Gold Field.

(By Mr. J. V. Mascerenhas, Health Officer, Kolar Gold Fields.)

The area comprised in Kolar Gold Field for purpose of Sanitation is 32 square miles. This is divided into Mining Area and Sanitary Board Area. The former is under the Control of the Mining Authorities and the latter under the Sanitary Board. The ground of the Mining Authorities is owned by 5 Mining Companies, *viz.*, Mysore, Champion Reef, Ooregaum, Nandidroog and Balaghat and the extent of land of each Mine is in direct ratio with the Mines named from Mysore. The population on the Mining Area is 52,300 and they are housed in 12,748 houses and huts. On the Sanitary Board Area, the population is about 39,000 and they are scattered over a wide area comprising 95 villages and 13 Cooly Colonies. The houses and huts on the Mining Area are the property of the various Mining Companies, while those on the Sanitary Board Area are the property of private individuals.

On the Mining Area each Mining Company has its own sanitary staff consisting of sanitary overseer, maistris and sweepers. The Sanitary Board Area is divided into 4 circles, each being under a Sanitary Inspector who has under him an adequate staff of maistries and sweepers. While on the Mining Area, the people having been housed in a well defined ares, the sanitary overseer is able to visit his circle in the course of the day. On the Sanitary Board area, the Sanitary Inspector is not able to inspect more than 2 sections of his circle in the course of the day. But every section which consists of 4 to 7 cooly Colonies and Villages is inspected by the maistri who brings his report every evening to the Sanitary Inspector about the illnesses, births and deaths and also of the work he has get done. It is thus that both on the Mining and Sanitary Board Areas that report of any Epidemic Disease or of birth and death is received within 24 hours.

Sanitation.—The sweepings from the camps on the Mining Area are given in contract to be removed by the raiyats in their carts, or destroyed in the incinerators. The night soil is burnt in incinerators and the sullage from houses is carried in well-laid out drains to their outfalls in natural nullahs which are always at a reasonable distance from dwelling houses.

On the Sanitary Board Area, in Robertsonpet the sweepings are dumped at a distance from the town and at the end of each official year this is sold in public auction. The same is being done for the cooly Colonies. In villages all the sweepings from premises of any individual are taken to his field and those in streets and Government land are heaped up in a separate place and sold in public auction at the end of every official year. The night soil in Robertsonpet and cooly Colonies where public latrines have been put up, is trenched and in villages it being of very small quantity is mixed up with the sweepings. The people in villages generally go to the nullahs or fields far off from the villages, The sullage in Robertsonpet is carried by means of underground drains to a settling tank which is in close proximity to the sewage farm which is every year leased out for about Rs. 175. In villages and cooly Colonies the sullage of each house is received in sinks constructed in burnt stone or brick and chunam and these are caused to be emptied regularly.

Water-Supply.—All the camps in the Mining Area are supplied with water from Bethamangala Water Works which are provided with Jewell Filters. On the Sanitary Board Area, Robertsonpet derives its water supply from the same source All the cooly Colonies and most of the villages have been provided with draw wells. It is only in a few villages there are the old step wells. Regarding villages, it is my firm conviction that unless the demand for a draw well comes from the villagers with a contribution from them either in labour or in cash, it is not easy to make them give up the use of the step well. In some villages, where draw wells have been provided entirely at the expense of the Board, the people have allowed the draw wells to get into disuse by resorting to the step wells from where it is easy for the women to fill up their pots by going down not more than a dozen steps and thus saving the strain on the arms caused by drawing water from a deep well.

Control of Epidemic Diseases.—The three principal epidemic diseases over which strict control is exercised are plague, cholera and small-pox. Section VIII of the Sanitary Board Rules treats of prevention and treatment of infectious and contagious diseases. The 5 clauses of the section are as follows :—

(1) Every person shall be bound to give immediate information to the Chief Sanitary Inspector, Mining Sanitary Inspector or Overseer or in case of persons living in villages in the area under the Sanitary Board of the Kolar Gold Field to the patel of their village, of any case of infectious or contagious disease or of death from such disease coming to his knowledge.

(2) During an epidemc of any infectious or contagious disease any householder or private Medical Practitioner who may have a knowledge of an illness in which symptoms of the prevailing infectious or contagious disease are exhibited or of a death likely to be due to such prevalent epidemic sickness shall be bound to give immediate information of such illness or death to one or other of the authorities mentioned in the preceding clause.

(3) It shall be the duty of the person to whom such information is given to institute or caused to be instituted immediate enquiry as to the nature of such disease or the cause of such death and to report the result of such enquiry to a sanitary officer.

(4) Any person found suffering from cholera, small-pox, plague or other infectious or contagious disease may be removed to a hospital set apart for the treatment of such diseases, by a written order from a sanitary officer ; and all persons residing in the building in which such disease occurs may be segregated by a similar order.

(5) Persons infected or suspected to be infected with any such disease and persons residing in a locality in which such disease has occured may be prohibited by a written order from a Sanitary Officer from leaving such locality, unless and until a Sanitary Officer certifies that they may safely be permitted to leave such locality.

On both the Mining and Sanitary Board Areas the segregation of the patients suffering from plague, cholera and small-pox as well as the evacuation of the houses for disinfection is made binding on the people, The segregation of the patients of the Mining Area is in the epidemic diseases Hospital and those of the immediate contacts in the contact sheds attached to the Hospital. While segregation of patients on the Sanitary Board area is either in the Hospital or in a shed erected in the neighbourhood of the infected locality. The preventive measures adopted against plague on the Mining Area are very elaborate. As I have said before every building on the Mining Area is the property of the company. During the off season rat killing campaign is carried out by digging the floors of all huts and particularly the rat holes and as the walls of huts are of double tatties these are loosened to let out the rats to be destroyed. This rat compaign is also carried out when plague prevails. If any dead rat is found in any premises, it is sent to the Laboratory attached to the Mine's Hopspital and if found plague infected the hut is caused to be immediately evacuated and the inmates are sent to the shed in the Health Camp. (There are Health Camps attached to every Mine). The hut in which the rat was found is destroyed. If a plague patient is found in a hut, he and his immediate contacts are sent to the Hospital for segregation and the hut is destroyed. If dead rats are found in a number of huts in any one camp people living in that particular camp are accommodated in temporary sheds and the floors and tatties of old huts are renewed at once.

On the Sanitary Board Area rat destruction is carried out during the off season and also during prevalence of plague, but as the houses are the properties of private individuals the same methods as those of Mining Area cannot be adopted. Very few instances of rat fall come to our notice till plague has established itself fairly well in the locality. Most of the rats that are killed are by means of rat traps. The number of rats destroyed on the Kolar Gold Field Area in 1916-17 numbered 61,619 of which 36,233 were destroyed on the Mining Area. As intimation of dead rats is given more voluntarily on account of the facilities afforded to the people of infected houses on the Mining Area during the severe epidemic of plague of 1916-17 there were only 169 attacks compared with 552 on the Sanitary Board Area. (There are a few villages on the Sanitary Board Area in which plague infected dead rates have been found and the people have camped out at once and there has not been a single case of plague in such villages.) Inoculation campaign too carried out and during 1916-17, 13,890 persons were inoculated.

Cholera.—For the past five years there have not been any severe epidemics of cholera on the Kolar Gold Field Area. Three localities on the Sanitary Board Area were infected on three different occations with this disease in 1914-15, the source of infection in all cases was arrivals from infected places in the Madras Presidency. In all the outbreaks the first cases were detected and the patients and contacts were immediately segregated in the Hospital and the disease did not spread. If any adjoining village is infected a strict watch is kep over the arrivals from such places and the people over the whole area are asked not to receive visitors from such infected places. It is thus that out of 95 villages and 13 cooly Colonies only one village and 2 cooly Colonies have been infected and this happened in 1914-15. Though Bowringpet and the villages in the taluk and also those of the Madras Presidency bordering on the Sanitary Board Area have been infected with the disease for the past one year, we have not had one case from these localities. The maistri who has been long in the section knows every individual in his juridiction and he detects the fresh arrivals at once and further the people in the village or cooly Colony having been previously warned against arrivals from infected localities, inmates of the neighbouring houses with the policy of self preservation play the part of the informant and the new arrival is thus quickly traced and if it is a fact that he has come from an infected area he is induced to segregate himself in the contact shed and in the case of the dis ant villages in the mantapas.

Small-pox.—The average number of cases of small-pox for one year during the past five years s 97. The largest number, *viz.*, 296 was in 1913, and in the four years the number of cases were 74, 50, 37, and 29, respectively. Vaccination being compulsory, the average number of primary vaccinations performed during one year for the past five years is 6,319. The primary vaccinations during a Calendar year exceed the number of births during the twelve months commencing from July of a year. This is accounted for by a large of unprotected children being brought into the area from villages of the North Arcot, Vellore and Salem Districts from where the major portion of labour is obtained on the field. For small-pox also segregation of the patients and immediate contacts is compulsory.

For chiken-pox, measles, mumps and whooping cough, the patients with their immediate contacts are segregated in the Health Camps on the Mining Area, but on the Sanitary Board Area no such measures are adopted.

Rabies.—During the year 1917, 26 dogs' brains were sent to Coonoor for examination and the result having been intimated 39 indigent patients were sent to Coonoor for antirabic treatment 114 dogs which had inflicted bites on persons were kept under observation for rabies for a period of ten days and only one of these dogs shewed signs of rabies. I have made it a rule that all dogs which inflict bites must be secured and brought to the office for observation. If any of these dogs don't seem to be well, they are kept under observation in the kennels maintained by the Sanitary Board. It is only in such cases where the dogs are killed either by the persons bitten or by their neighbours or guardians, the brains are sent to Coonoor and when the result of the examination is announced to be possitive the patient is sent to Coonoor for treatment. For the past three years there have been only three deaths from Hydrophobia, one child having died at Coonoor while undergoing treatment; another child died after returning from Coonoor after the treatment and an old begger woman died in a village and it appears she was bitten by a dog about 3 months previous to her death.

Epidemic Diseases Hospital.—This is intended to receive plague, cholera and small-pox patients and is situated in Robertsonpet near the Civil Hospital. All the patients that are sent to the hospital are seen by me as soon as the report of their admissions is sent to me and the diagnosis is settled by me or by one of the Medical Officers of the Mines. The Sub-Assistant Surgeon has directions to keep all cases in which the signs of the disease are not clear under observation till they are seen by me or by the Mine's Doctor and till there are definite signs of the disease the observation is continued. Thus out of 111 patients admitted into the Hospital during 1917-18, 93 were for observation for plague, three for small-pox and fifteen for Cholera. The Hospital Staff consists of 1 Sub-Assistant Surgeon, 1 Compounder, 2 Nurses, 4 Warders, 4 Wardresses and 2 Sweepers with 1 Cook. In addition to the wards for different diseases, there are in the hospital compound 10 contact sheds wherein 10 cooly households can be accommodated and two bigger houses for Anglo-Indians and better class Indians. If there is demand for more accommodation, temporary sheds are run up at once. The whole Hospital Staff has quarters in the hospital compound.

Mortality Rate.—For the past five years the average annual rate is 30·8 per mille. The age periods which contribute the largest figures are under one year, under five years and between twenty and thirty years. During the first two age periods, the high rate is accounted for by the children being exposed to the rigors of weather without providing them with any clothing and is also due to malnutrition. As there is demand for female labour here the infants are left to be cared for by their elder brothers or sisters and thus they are not only fed at very irregular intervals, but are also given uncongenial diet. The high mortality in the age period between twenty and thirty years is due to excesses in life which make the young people more prone to disease than those who are not addicted to them.

Birth Rate.—The average annual rate for the past five years is 38·8 per mille. This favourable rate is accounted for by a large number of immigrants of child bearing age settling down as labourers. What has been our gain has been the loss of the Districts of the Madras Presidency from where the labourers come. In order that trained help may be given to parturient women we have started a scheme of training women who have already been conducting labour cases in the old crude way. There are already five women from the Mines undergoing training in the Robertsonpet Maternity Hospital.

The Public Health Establishment in comparison with the population :—On the Mining Area the population is 52,500 and the number of Sanitary Overseers and Inspectors are 9, while Sub-overseers and maistries number 54. On the Sanitary Board Area the population is 39,000 and the Sanitary Inspectors number 5 and maistries 26. Thus on the Mining Area while there is one Sanitary Inspector for every 5,800 persons on the Sanitary Board Area there is one Sanitary Inspector for every 7,800 persons. As regards maistries, on the Mining Area there is one maistri for every 1,000 persons, on the Sanitary Board Area there is one for every 1,500. These maistries from the real backbone of the Sanitary establishment on both the areas for they are the persons who bring information of domestic events such as births and deaths, of illness. They supervise also the work of sweepers.

On the Mining Area there are 12,748 houses and huts and those are conserved by 690 sweepers, *i.e.*, there is one sweeper for every 18 houses. Whereas on the Sanitary Board Area for Robertsonpet, Steven's Camp and cooly Colonies there is one sweeper for 30 houses and for two or three villages there is one sweeper.

With hard and fast rules and regulations and with proper resources at one's command, a good deal can be done to control the epidemic diseases and sanitary condition of towns and it has been truly said that the efficiency of an officer of the Public Health Department is measured by the enemies he makes, but this is only half the truth. By his tactful resourcefulness and honesty of purpose he must command the respect and friendship of his fellow citizens, but his motto for the performance of his official duty should be " Here all the freindship ceases."

(2) A FEW OBSERVATIONS ON THE PUBLIC HEALTH CONDITIONS OF KADUR DISTRICT.

Kadur is reputed to be a very unhealty district specially its malnad parts. It is commonly believed that these parts have greatly deteriorated owing to the prevalence of malaria. Their population is said to be fast declining of late. On the people's representation some investigations into the causes of such unhealthiness and decimation of population in malnad having been made, Government

have been pleased to sanction some scheme for the improvement of these parts. Much good work is being done under that scheme. I give here a few isolated observations I had occasion to make in the matter in the course of my official duties.

Kadur is a small district having an area of 2,789 square miles. The major portion of it is quite hilly containing the highest mountain peaks in the State and in some of these parts the rainfall is very heavy. The climate of the district is on the whole quite healthy being temporate.

Nearly a hundred thousand acres of this hilly land known as malnad is under coffee cultivation and about another quarter as much is used for the cultivation of pepper, cardamom and arecanut. These are the important industries of the district.

The coffee cultivation in the district, though, as the tradition goes is over three centuries old, having been at that distant period introduced for the first time by a Mahomedan Pilgrim who brought with him ome seed of the plant and distributed it among the local raiyats on the Bababudan Hills, who in their turn cultivated it on a small scale, did not receive the impetus it required to attain its subsequent success as a great industry until the Europeans took to it in 1848. Coffee trade is said to have been in boom in the district in 1880 or 81 and it continued to flourish till about 1901

This and the cultivation of the other products named above necessitated a large amount of labour which had to be procured from the east owing to its dearth locally. Since 1901 there has been a depression in the coffee trade in the district owing to over-production of the article in Brazil which necessitated curtailment in the cultivation of the berry with consequent economy in the employment of labour in the district.

If the census figures of the district for the decades ending with the years 1871 (prior to which the censuses were quinquennial) 1881, 1891, 1901 and 1911 be examined the fluctuations in the population noticed correspond exactly with the rise and fall in this coffee industry in the district. A steady increase in the population is seem recorded in the decades from 1871 to 1901, and such increase is shown as more in the malnad areas of the taluks of Koppa, Narasimharajapur and Mudgere, the Jagara, Kasaba and Khandya Hoblies of Chikmagalur Taluk and Lingadahalli Hobli of Tarikere Taluk, in fact in such parts of the malnad tracts where coffee estates abound. Even the virulent famine of 1876-77 did not seem to have had effected this progress in them whereas it reduced the population of the maidan parts appreciably.

It is only in the decade 1901-11 that a sudden decline is to be seen in the population of malnad, and it corresponds exactly with the depression in the coffee trade and consequent curtailment of labour mentioned above in the district. Such decrease, however, is noticeable in places where coffee business is dull in the district. It is likely that the introduction of Rubber and Tea cultivation in Malabar and Wynad and the opening of the railway and fisheries on the West Coast have also contributed to a great extent to divert this labour. All the same, this decline in the population seems to indicate the efflux of the foreign cooly-population from the District rather than any change in the composition of the local (indigenous) people.

The bulk of the population in several parts of malnad, even to this day, consists of foreigners from the West Cost. And, unless a column be opened for the local (indigenous) people apart from the foreign settlers in the enumeration and compilation of this district population during the future census operations and similar classifications be observed in the maintenance of the vital statistics of malnad, it may not be possible to get a correct idea of the composition and social condition of the former people for statistical purposes.

With a view to ascertain the amount of unhealthiness or disease-condition in malnad, the Sanitary Commissioner with the Government of Mysore having issued certain instructions and directed a Disease Survey to be made in certain selected villages in malnad parts of the district, a survey of the kind was conducted in the dry weather months of May and June of 1917 and in 8 villages and their 25 sub-villages or hamlets of four malnad taluks of the district. Places, where depopulation according to the census figures, was most marked, were selected for this purpose ; every dwelling house in them was visited and the number of inhabitants in each house was noted ; and each individual present at the time was examined noting down the malady, if any, he suffered from at the time. The majority of the people so examined were of the local (indigenous) category, foreigners being mostly absent at the time having gone to their respective native places, as they usually do in summer.

The total number of diseases or departures from the original condition of health due to sickness noticed in the total population of 4,678 in these surveyed places was 262 giving 5.60 per cent. of illness. A list of the diseases noticed is hereto appended. Many of them were trivial maladies and can hardly be put down as peculiar to malnad. Those deserving notice were :—

(1) Fevers	8
(2) Enlargement of spleen	142
(3) Do do accompanied with fever	16
(4) Anaemia with occasional fever	3
(5) Chronic Malaria	2
(6) Lung affections acute and chronic	9
(7) Bowel complaints	6
(8) Heart disease	2

The percentage of persons in whom any evidence of malarial infection was found at the time of the survey was therefore 3·65 per cent in a population of 4,678.

Out of the 142 cases of enlargement of spleen 126 were in childern under 12 years of age. who

numbered 1,610 in the enumeration of the survey, giving an average spleen index of 7·82 per cent. The largest spleen-rate noticed was 26·47 in Duglapura a village situated in the semi-malnad area of Tarikere Taluk. In the village of Shiragalale consisting of 8 hamlets in Narasimharajapur Sub-Taluk however the spleen-rate obtained was 14·06 per cent.

Evidences, like scurvy, malarial cachexia, anaemia, etc., of these people having previously suffered from long continued illness were too few. Even among the destitute classes such as Panchamas Buggars, the men, women and children looked healthy and strong. A healthier set of children, boys or girls, than seen among the Buggars in Koppa and Narasimharajapura Taluks were not met with in many maidan villages or large towns in the District.

The above evidence cannot be said to support the view that much unhealthiness prevails in malnad.

The amount of spleenic enlargement in children between the age of one and twelve years in a given locality is said to give an accurate idea of the malaria prevalent there, and medical men all over the world use this method for the purpose. This test applied in the present case as shown that in some instances malaria is more prevalent in certain places in the maidan zone of the district than in malnad. The spleen-rates of Kalasapur and Belwadi villages of Chikmagalur Taluk situated in the maidan part of the taluk were 46·15 and 31·74 respectively and those of Sakrepatna and Brahmasamudra of Kadur Taluk, also maidan, were in 21·42 and 25·70 respectively.

The excess of deaths over births has been shown as a potent cause of decrease of population in Kadur District. Complete records of births and deaths for past years are not available, however, to verify this statement. It goes without saying that the present Registration of Vital Statistics is anything but accurate. The extraordinary low birth and death rates recorded are ample proofs of it. A few concrete illustrations will further convince this fact. The quarterly birth-rate of the town of Chikmagalur for the quarter-ending September 1916 was found to be only 9.83 per mille of population when reviewing the Quarterly Returns of births and deaths for that quarter. This, of course, became a subject of comment in the meeting of the Municipal Council and in the subsequent quarter the birth-rate rose to 18·77. And when preparing my Annual Report for 1917, I found the annual birth-rate for that year in that town to be 30·68 per mille of population.

If in a large town like Chikmagalur which is the headquarters of the district the Registration of Vital Statistics is so very unreliable, it is needless to say that things are worse in rural areas.

In the village of Naglapur with a population of 404 in Narasimharajapur Sub-Taluk 14 births were found to have been registered for a space of ten months. On verification, however, it was noticed that 7 more births had been left out. The annual birth-rate of the village calculated on these total births comes to 43·31 per mile of population. This is by no means a low birth-rate even for a maidan village. Naglapura is a typical malnad village inhabited only by Buggars.

Birth-rate is, perhaps, low in certain classes of people in malnad. During the Disease Survey mentioned above I had occasion to note a marked difference existing between the proportions of children and adults among the different communities of Havahalli village of Aldur Hobli in Chikmagalur Taluk. When the proportion of children to adults among the Mahomedan there was 42·82 among the Panchamas 46·86 and among the Hindu foreign settlers 21·37, it was only 24·84 among Vakkaligars. Among the 84 adults of that community there were 10 bachelors and 6 maids and 5 widowers and 18 widows, nearly half the population of the community in a state of disqualification for reproduction.

To sum up then, it seems to me that more and accurate information is wanting to establish the theory of unusual unhealthiness and depopulation in Malnad.

LIST OF DISEASES NOTED DURING THE DISEASE SURVEY IN MALNAD IN KADUR DISTRICT IN THE YEAR 1917.

1. Fevers	8
2. Enlargement of spleen	132
3. Do do do accompanied with fever.	16
4. Anaemia with occasional fever	3
5. Chronic Malaria	2
6. Measles	8
7. Leprosy	1
8. Syphilis	2
9. Rickets	8
10. Rheumatism	3
11. Heart Disease	2
12. Dropsy	1
13. Pneumonia	1
14. Pleurisy	1
15. Phthisis	2
16. Bronchitis, Chronic	4
17. Asthma	3
18. Diarrhœa	2
19. Dysentery	1
20. Gastritis	2
21 Dyspepsia	1

22. Sprue	1
23. Piles	2
24. Sore throat	1
25. Colic Biliary	1
26. Brights' Disease Chronic	1
27. Fistula Bladder	1
28. Chronic Uterine trouble	2
29. Dysmenorrhaea	1
30. Opthalmia	14
31. Do Granular	5
32. Entropion	2
33. Discharge from the ear	2
34. Skin Diseases	3
35. Eczema	1
36. Inflammation of the breast	1
37. Cellular inflammation foot	1
38. Abscess of the thigh	1
39. Wound	1
40. Ulcer	4
41. Synovitis Chronic	1
42. Chronic keen joint disease	2
43. Caries jaw	2
44. Hemiplegia	1
45. Facial Paralysis	2
46. Epilepsy	2
47. Chronic Vertebral Diseases	1
48. Ankylostomum duodenale	1
49. Itch	2
Total	262

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(3) An Indian Creche in Bangalore.

By S. Amritaraj, L.R.C.P. & S. (Edin.), D.P.H., Bangalore.

The above institution was opened by the Municipality on January 15th, 1913. Its inception was due to Mr. F. J. Richards, M.A., I.C.S., the then Municipal President. The creche was one amongst othe recommendations made by a committee of local medical men and women appointed to investigate into the question of the high infantile mortality prevailing here. It was given effect to last. The municipal authorities received much assistance in the matter of preliminaries from Dr. (Miss) A. G. Lillingston, Medical Superintendent of the Local Zenana Mission Hospital.

The initial expenses for the purchase of furniture and other sundry articles necessary amounted to about Rs. 200. A medium sized, upper-storeyed, rented building was selected close to a slum area in the heart of the town. It was proposed to limit the number of admissions to twenty infants only the age-limit being fixed at two years, preference being given to much younger ones. Provision has now been made for 30, and the number of children coming in is from 20 to 25 at the most The creche is not worked on Sundays. The charge nurse resides on the premises. Her work is supervised by the Health Officer, the Divisional Sanitary Inspector, and for the past six months by the Lady Health Visitor in addition. (The latter appointement was recently sanctioned, a qualified European nurse being selected.)

The children admitted usually belong to the socalled " untouchable classes " namely, Panchamas, Madigas, Voddars and Indian Christians, although no caste restrictions or scruples are observed. Mahomedan babies are occasionally brought in, while no children from the caste-observing communities are ever sent in.

The average daily admission works out to between 18 and 20. The highest number for a single day was 26. Some of the youngest tended at the creche were about a week or two old, while twin babes have not been infrequent inmates Ailing infants are not admitted, but advised to seek hospital relief and then brought in. It is interesting to note that not one casualty has occured so far, excepting one case wherein a child was brought in a semi-starving and neglected condition by an unknown stranger (apparently the father) who left it with the charge nurse, in spite of her refusal, saying he would return soon. This infant who was very ill was sent to the hospital, as the father never turned up, but unfortunately died.

The approximate charges incurred every month for maintenance are,—

A. Permanent—	Rs.	a.	p.
(1) House rent	15	0	0
(2) Salary of charge nurse	30	0	0
(3) Salaries of 2 ayahs at Rs. 8, each	16	0	0
(4) One peon	7	0	0
	68	0	0

B. Recurring Expenses—

These include dieting charges and sundries, averaging about Rs. 50 a month ; total Rs. 118, *i.e.*, approximately Rs. 120 per mensem. This should be considered reasonable.

The charge nurse is a diplomaed Indian Christian midwife and sick-nurse and has worked very satisfactorily from the start, as will be seen from the extracts from the visitor's book (given later).

The following, briefly, is the daily routine :—

1. *Toilet.*—This consists in bathing the infants and clothing them with the creche clothes.

2. *Diet.*—Babies under six months are fed on cows' milk, suitably diluted and sweetened. The older infants are given gruel made of finely screened ragi flour specially made) with milk, a little water and sugar, light rice-cakes, boiled rice with vegetables, and bread ; meat curry and broth are occasionally given.

The cradles are of the Indian basket and the swinging-cloth patterns, commonly noticed in Southern India. Toys are also provided.

Infants above three months old found unvaccinated are vaccinated by the Municipal Vaccinator.

The following extracts from the Municipal Administration Reports may be of interest :—

1912-13.—" An experimental day nursery, for which provision was made in the last Budget, was opened near Blackpally at No. 14, Cockburn Road by the President (Mr. A. R. Cox, I.C.S.), in the presence of Dr. (Miss) Lillingston and the Municipal Officers on 15th January, 1913. The Municipal Commission wish to thank Dr. Lillingston for her help and advice in this matter. The number of children admitted as inmates every day is 18. They are fed and looked after from 7 A.M. to 9 P.M. while the mothers are away at work. Admission is confined to children under two years of age, and there is at present sufficient accommodation for about 20. The creche is closed on Sundays. The charge nurse, assisted by two ayahs and one peon, has been working satisfactorily. The remarks of the several visitors interested in the movement have been appreciative. Steps will be taken to start one or two more if the nursery proves succe sful and when funds permit."

1913-1914.—" This, which is in its second year of existence, has been serving a very useful purpose, though admission is at present restricted to 20 children. The average number of children daily admitted has been 18. The age-limit has been reduced from 2 years to 18 months. The work of the midwives and the day nursery are supervised as carefully as possible."

1914-1915.—" Th number of children up to eighteen months old admitted was 5,652 giving an average of 18 per day. Surgeon-General Corker (Army Medical Service, Southern Army) and Colonel A. E. Tate, A.D.M.S., Bangalore, were amongst the visitors and appeared pleased with this institution. ' It is hoped to enlarge this in the near future to give it a wider scope "

1915-1916.—" This institution, which is still in an experimental stage, maintained its popularity with the mothers of the poorer classes. It draws numerous visitors, and all leave appreciative remmarks in the visitors' book. Three mofussil gentlemen presented a few toys and clothes for use at the creche, which were greatfully acknowledged."

1916-1917.—" The question of a permanent habitation and provision of greater accommodation has been deferred for the present. The work of the charge nurse and ayahs was supervised by the Lady Health Visitor.

It is high time that more institutions of this sort are founded by charitably disposed citizens.

I have nothing further to add except the few following remarks. A sum of Rs. 3,000 has been set apart by our Municipality for a permanent building to accommodate up to 50 infants. This home will be located in a better locality, *i.e.*, within easy reach of large slum areas. The attendance for the year 1917-18 was about the same as in the previous years. The Lady Health Visitor has been particularly of great use in supervising this institution. Two photographs are put up herewith, one giving the external view and the other showing a group of babies with the charge nurse and ayah.

(4) Note on the Appointment and Duties of Lady Health Visitor, Civil and Military Station, Bangalore.

This appointment, the first of its kind in this Municipality, was sanctioned by the Hon'ble the British Resident early in 1914 to be tried as an experiment for a period of two years. Owing to the large number of purdah women in the Civil and Military Station, particularly amongst the Mohamedan community, and to the desirability of having a proper female supervising agency over the municipal midwives working among the poorer classes, this appointment was suggested by the Health Officer and was considered favourably by the Municipal Commissioners.

It was first decided to fill this place by appointing a medically qualified Indian lady of grade not lower than that of Sub-Assistant Surgeon, but no suitable candidate was forthcoming in spite of advertisements in the press. The salary fixed was Rs. 75 rising in 5 years to 100 by an annual increment of Rs. 5, plus a conveyance allowance of Rs. 25 per mensem.

The appointment remained vacant till 1st February 1917 when it was decided to give it a trial by selecting a qualified European nurse with Obstetric and Gynaecological experience. It may be mentioned that the Civil and Military Station Municipality was probably the first one to try this appointment in this part of India.

Note.—Ragi is one of the chief staple food-grains used in parts of Southern India, especially Mysore State. It is a nourshing food-stuff. Aluminium vessels and English feeding bottles are used, and every care is taken to ensure these being kept clean.

The details of duties to be performed by the Lady Health Visitor are as follows :—

1. Supervision over the work of 6 municipal midwives.

The cases conducted by them should be carefully checked and verified. Also, pregnant women under observation by the midwives should be examined from time to time and the names verified after confinement. While checking these cases the Lady Health Visitor will make the following enquiries —

(1) as to the status of the party

(2) whether the confinement was fully performed by the municipal midwife concerned. The confined person and the infant should be visited by the midwife or at least fifteen days.

(3) Whether any abnormal cases, such as twins, abortion, premature birth, etc., have been noticed. The midwives shall promptly report these to the Lady Health Visitor.

(4) General Sanitary condition of the house.

(5) Whether the midwife concerned has given suitable advice regarding feeding and general care and also to see if the navel cord has been properly cut and dressed. Mothers should be warned against the practice of branding new born infants.

(6) Whether the instuments, etc., used have been kept clean.

(7) Whether any of the inmates are not protected by vaccination against small-pox.

2. Daily visit to the Municipal Creche at 9 A.M. to see that the charge nurse attends to her duties. The articles of food, bathing utensils, etc., should be looked into. The creche should also be visited in the afternoons not less than three times a week.

3. Periodical visits to Gosha houses and also visits to pregnant women in Paracherrie and sums and in such cases the Sanitary Overseers of the division shall render all assistance.

Reports to be sent up regarding

(1) Latrines, bathing places, etc.

(2) General Sanitary condition of the houses.

(3) Particulars with names, etc., of children and adult females found unprotected against small-pox and to perform vaccinations.

4. All the Girls' Schools in the Civil and Military Station (as per office list) shall be visited at least once during the month, special attention being paid to children found unvaccinated and to the provision of suitable sanitary arrangements. A separate book shall be kept for this purpose and sent up to the Health Officer once every month usually, expecting any urgent matter which should be brought to the notice of the Health Officer as early as possible.

5. The occurrence of any of the following notifiable diseases shall be reported to the Health Officer without delay :—

1. Plague.
2. Cholera.
3. Small-pox.
4. Measles.
5. Diphtheria
6. Enteric fever
7. Leprosy.
8. Hydrophobia
9. Whooping Cough.
10. Chicken-pox.
11. Scarlet fever.

6. Examination of Gosha women who may be bitten by dogs.

7. All municipal midwives (7), the nurse in charge of the Municipal Creche and the ayahs attached thereto shall work under the instructions of the Lady Health Visitor who will report on all such matters to the Health Officer.

8. The Lady Health Visitor shall work three hours in the mornings commencing at 7 or 7-30 and again for an hour and a half in the afternoons from 2-30 to 4 P. M. every day excepting on Sundays and other authorized Christian Holidays.

9. The following books shall be maintained by her :—

(1) A daily report in Diary Form to be submitted to the Health Officer of the work done the previous day.

(2) A register showing the houses inspected for Sanitary reasons to be sent up to the Health Officer once every week.

(3) A register to enter the visits to Girls' Schools and action taken (Para iv above) to be submitted at the end of every month.

10. The Sanitary Inspectors, Deputy Superintendent of Vaccination, Circle Overseers and Peons, Vaccinators and Vaccinatrix and the out-door statistical staff shall render all possible assistance to the Lady Health Visitor as far as her duties are concerned.

The Lady Health Visitor is a full time official and is debarred from private practice. It is a year and a half since she has been working. She has been very useful to the Health Department.

Our womenfolk particularly in Mohamedan localities and slum areas have begun to appreciate work and welcome her visits though she has to struggle against old customs, prejudices, etc., Girls' Schools have benefited a lot by her inspections and advice. There is enough work for her and public co-operation is essential.

Though still an experimental stage it is now being felt that this appointment is an indispensable necessity in an Indian Health Department. For some time to come the selection of candidates for this post should be done with care and it is certainly advisable to have select European or Anglo-Indian Ladies. If Indians are to be appointed they should be nothing less than medical graduates

N.B.—In cases where hospital treatment is necessary, such as difficult labour, etc., the midwives should seek the advice of the Lady Health Visitor who will refer the patients to be sent to Maternity Hospitals.

and this would be more costly but worth giving a trial. The minimum salary for Europeans should be Rs. 100 plus adequate conveyance allowance No private practice should be permitted. She would work directly under the Health Officer or the Distric Medical and Sanitary Officer.

An official of this nature useful and helpful as she would be in urban areas would be of invaluable service in rural districts. It is high time for municipal and local authorities in India to provide such Lady Assistants in every Sanitary Department.

The above remarks may perhaps be looked on as too optimistic but the writer, from the short experience gained in watching the work of the lady Health Visitor in the Civil and Military Station, feels certain of the real utility and need of employing Lady Health Visitors largely. Good results are sure to accrue in the end though obstacles have to be encountered at the start. It may not be out of place to mention here that a reference to this question was made by a member of the Mysore Representative Assembly in the Budget speech at the April Sessions, namely Mr. Hosakoppa Krishna Rao who says " Lady Health Visitors are a necessity for all Malnad Districts."

The following extracts from the Civil and Military Station Administration Report for 1916-17 and 1917-18 may be of interest :—

1. 1916-1917.—" *Lady Health Visitor* ".—A marked feature of the year was the filling up of this appointment in February 1917. Mrs. A. G. Kelly, a European qualified Obstetric and Gynaecological nurse, was selected, as no suitable candidates with medical qualifications were available. The services of the Lady Health Visitor will, it is hoped, be of great use. The Lady Health Visitor's work during the two months of the year under report may be considered good, and progress in this direction can only be looked for after sometime.

Five hundred houses not easily accessible to the male Sanitary Staff were visited by her, in addition to the inspection of all the local Girl's Schools. Her duties consisted mainly in advising sick women and children to seek hospital treatment and in personally supervising the Municipal Creche and the 6 Municipal Midwives. In addition, Vaccinations were done in Mohamedan houses and wherever possible necessary instructions were given to house-holders regarding the care of confined women and new born infants amongst the poorer Indian Communities, especially in the Paracheries, where the conditions in which pregnant and confined women live are anything but satisfactory and to whom hospital treatment seems such a bugbear.

" 1917-1918.—Mrs. A. G. Kelly continued to work as Lady Health Visitor for full year. She has been of great value to the Health Department. The Municipal Midwives and the Creche have been brought under better supervision and discipline. Her visits to private houses and the local Girls' Schools are always welcomed. The following is a general summary of her work during the year :—

1. Visits to private houses	3,515
2. Visits to all local Girls' Schools numbering about 30	330
3. Confinement cases conducted by the 6 Municipal Midwives checked	838
4. Attending to difficult labours and watching delivery cases to note the methods followed by our medicines. ..	22
5. Vaccinations performed	22
6. Women sent to Hospitals	36
7. Children do	36

The above may be regarded as a good record of work done. In addition, she has been able to distribute medicines to the poorer classes (women and children) for ailments such as scabies, sore-eyes and malarial fever. It is hoped to provide a few handy medicines for her use in the coming year. The commonly prevalent practices of branding new-born infants and of drugging them with all sorts of Bazaar medicines are being advised against. These evils can only be remedied in course of time by the spread of education.

Another eight months remain for the completion of the experimental period (2 years) fixed for this appointment, but it is not premature to remark that the Lady Health Visitor should be a permanent member of the Health Department Staff. The usefulness of this appointment can only be estimated in the near future ."

(5) THE NEED FOR STATE LEGISLATION TO CONTROL UNTRAINED PRACTISING MIDWIVES IN INDIA, WITH A FEW OBSERVATIONS ON THE IMPORTANCE OF PROMOTING MATERNITY AND INFANT WELFARE.

This subject has been chosen with a view to suggest certain reforms essential for sanitary progress in India especially with regard to the saving of lives of women during confinements and of their new-born babies. The question of reducing Infantile Mortality and guarding the welfare of parturient women is at present receiving universal attention, more so in the past, owing to the world-war crisis. In India, sanitary authorities are doing much with the assistance of Government to investigate the prevalent causes of Infantile Mortality and of the deaths of mothers due to puerperal conditions and are taking suitable remedial measures. The latter consist mainly in improving the sanitary conditions of slum areas and the provision of trained midwives for work amongst the poorer communities. These measures are at present confined to urban areas but the vast majority of the people in rural areas have not been adequately touched yet.

The Infantile mortality rates vary very widely in different parts of India, from 200 to 500 (approximately in round numbers) per 1,000 births registered during the year. Statistical figures giving

the rates for important cities and provinces are put up at the end from which details could be gleaned showing how unsatisfactory matters are in this direction. In England, many cities show figures less than 100 and the maximum as a rule is seldom much over 100. (*Vide* Appendices 1 to 4) New Zealand is said to have the lowest Infantile Mortality.

Most of the Infantile Deaths in India are due to preventable causes both physical and social. Over social problems the sanitarian has no control. But much can be done to relieve distress amongst the poor by the more well-to-do with Government assistance. Poverty and negligence due to the conservative habits of the people are the chief factors in relation to Infantile Mortality and Deaths of parturient women in this country. Statistical returns often show a fair number of preventable deaths occurring during and soon after parturition.

There is also one other item which is not usually given much prominence to, namely, still births. Apart from constitutional and other causes a large number of these are due, no doubt, to incompetent midwifery. Public Health Statistics always show high figures all over India.

To come to the point of this subject, *i.e.*, State Legislation for the control of all practising midwives. The writer has had occasion to watch the work of half-a-dozen midwives employed by the Civil and Military Station Municipality of Bangalore to attend free on the poorer communities, and, from experience gained over a period of six years now, makes bold to put forward a rough scheme, which may not be ideal. Their work is now closely supervised by a European (Obstetric Nurse) Lady Health Visitor whose services are greatly in demand.

In every city , town and village there has been always what are called" Barber Midwives " or " Dhais," who are the cause of all trouble. Legislation should be specially aimed at these. These women, no doubt know the practice of midwifery after a fashion of their own and are in great demand amongst the poorer sections of the community and not infrequently, the better classes of Indians also utilize their services, especially if the practising Dhai is an elderly person " with some years of experience." To them, sepsis and the methods of managing difficult cases of labour, the two e sential principles of scientific midwifery are unknown. The attendant and resulting dangers of such indifferent and meddlesome midwifery can better be imagined than described. Many a healthy woman has lost her life by septicaemia, eclampsia, tetanus, excessive haemorrhage, etc., for want of skilled and timely care. Added to these is the insanitary condition of the houses in which such labours are conducted. No doubt, in provincial towns and other places where Western medical aid is available the danger is not so great but Fatalism, rigid adherence to old and superstitious customs, and fear of hospitals are all great barriers even when Maternity Hospitals are handy. Within recent years, there has been greater resort to the public hospitals and dispensaries for maternity treatment amongst all classes. In spite of all this, the influence of the untrained bazaar midwife has not lessened much excepting, in certain urban areas. Indian women should be educated in sanitary matters especially with regard to parturient and infantile hygiene and it is the duty of our male folk to promote this. Social reform should be primarily in this direction.

A few words regarding the legislation in Great Britain in these matters will not be out of place here. There are three important Public Health Regulations which aim at the welfare of Infants and of Parturient women, namely :—

1. Notification of Births Act 1907.
2. Midwives Act of 1902.
3. Compulsory notification of Ophthalmia Neaonatorum from April 1914. The object of the first is the early and compulsory registration of all births by which sanitary officials may visit the mothers and the new-born infants so that suitable steps may be taken to safe-guard their health whenever found to be necessary.

The Midwives Act of 1902 authorizes Local Bodies to enforce every practising midwife to have a certificate of qualification and proficiency. This Act further gives power of control over the methods used and is also a valuable check against malpractices. All defaulting midwives are referred to the Central Midwives Board, for necessary action.

By the provision of compulsory notification of Ophthalmia neanatorum in Great Britain (1914) another responsibility has been added to the duties of the attendant midwife or accoucheur. Mr. B. G. Bannington in his book on " English Public Health Administration" (1915, edition) writes as follows :—

" The Act (Midwives Act) has resulted in a considerable improvement in the treatment received by lying-in-women and their children, an improvement which, no doubt, will be well reflected in the mortality and vitality rates of the future."

The Central Midwives Board as constituted in England deals with all matters connected with the professional training of all women practising midwifery, grants licenses, enquires into cases of defaulters, etc., and fixes salaries and fees, *i.e.*, it is the Central Administrative Authority. All public bodies, *i.e.*, local and sanitary authorities are guided by the Rules and Regulations fixed by the Central Midwives Board.

It would not be out of place to mention two other recent war measures, one of which is now in force :

(1) " The milk (Mothers and Children) order 1918 " (dated February 8th, 1918) issued by the Food Controller acting under the Defence of the Realm Regulations in the United Kingdom. This empowers any local authority to arrange for the supply of food and milk for expectant mothers and nursing mothers, and of milk for children under five years of age. The quantities required are fixed

by the M. O. H. or M. O. of a Maternity or Child Welfare Centre. The Local Government Board reserves to itself the power of enforcing this order in any locality according to circumstances and it is the duty of the Medical Officers of Health to see that the food and milk so supplied is clean and good." (Reference, British Medical Journal February 23, 1918).

(2) The Maternity and child welfare Bill introduced by the President of the Local Government Board (Great Britain). It gives powers to local authorities whenever necessary, owing to war conditions, to make arrangements " for attending to the health of expectant mothers and nursing mothers and of children who have not attained the age of five years and are not being educated in schools recognised by the Board of Education." (Reference, British Medical Journal April 6th, 1918).

When Great Britain, in spite of the titanic struggle in which she is engaged for which the whole of the Empire's resources are required, can deal with maternity and child welfare schemes during such trying times, how much more reason there should be for us, in the absence of such difficulties, to promote and effectively deal with similar problems in our country. We are apt to move slowly in sanitary matters as in everything else. Active efforts both by the State and the public are very necessary in this direction.

Is the need for legislation on English lines necessary in India ? Or, are such methods likely to fail or meet with opposition ? Considering the recent advances in Sanitation in India the answers to the above two questions would be certainly ' No.' Compulsory Registration of births is already provided for throughout the country, and the people, in most cases, report births in time ; and public Bodies are also now having improved methods of registering vital statistics by employing a better quality of working staff. The value of Birth and Death Certificates is realized. So there cannot be any opposition whatsoever if measures are taken to suit Indian conditions. Amongst the latter the following call for special mention.

1. Very few women (Indians) will permit male doctors to attend on them during labour.

2. The poorer classes cannot afford to pay for good qualified midwives, hence the untrained midwife gets the upper hand.

3. An inherent unwillingness on the great majority of Indian women even of the poorer sections to admit themselves into the public maternity hospitals.

4. A very large number of villages are as yet unprovided with qualified (western midwives. Here, quackery reigns supreme and every old woman pretends to be both physician and accoucheuse and what not.

5. The importance of a female supervising agency should be considered if success is to be at ained.

To meet the needs of India's millions a very large number of midwives require to be trained at public (state) expense, by assistance from philanthropic persons or both. It cannot be done quickly. But the time is opportune for a good start. All untrained Dhais can be compulsorily made to undergo a training course of *not less than three months* in the several hospitals at different suitable entres. They already know the practice of unskilled midwifery and supplemented by hospital training as above, ought to turn out good midwives. Further, with the proposed legislation they could be kept in check.

It is very difficult to put up Statistical figures regarding the number of deaths of women and infants actually due to postpuerperal conditions. But there is no doubt a good number of such deaths now entered under " child-birth ", etc., are due to careless midwifery. A large number of deaths due to puerperal Septicaemia in Hospital Statistics are often the result of outside interference by untrained midwives before such cases are taken to public hospitals. It is highly desirable that a proper investigation of these statistical returns should be made from figures published in Maternity Hospital Reports. Much useful information will be available to institute suitable preventive measures. In this connection the following remarks of Major C. H. Brodribb, I.M.S., in his report on the Civil Hospital, Secunderabad (1916), will be interesting :—

Maternity Out-patients :—' The new scheme for an out-patient maternity department has come into force during the year. This scheme was formulated by Major Brodribb with the help of a Cantonment Sub-Committee and the Lady Assistant Surgeon, Miss Conway. The features of the scheme are :—

(1) The training of local Dhais in the hospital.
(2) The giving of certificates to such as qualify.
(3) The inspection of the cases attended by the passed qualified dhais by the Lady Sub-Assistant Surgeon and the Lady Assistant Surgeon.
(4) The payment of rewards to dhais for cases in which no fault can be found on inspection.
(5) Any passed dhai in difficultie is entitled to send for gratuitous help in the case of poor patients to the lady Sub-Assistant Surgeon, and she in her turn to the Lady Assistant Surgeon.

This scheme has been under the charge of the Lady Assistant Surgeon, to whom great credit is due for the results obtained. The scheme has worked well and smoothly to the great advantage of the wives of the poor.

The advisability of some method of licensing dhais and midwives has been brought to the notice of the Cantonment Committee and is at present under consideration.

The scheme was put into operation on May 15th and there were 15 dhais at this time who had received training in the Civil Hospital ; by the end of the year this number had been increased to 45.

The total number of labours attended outside the hospital under the scheme was 380. The following figures per month show the progress of the scheme, the diminution during the last three months being due to the out-break of plague.

May 15th to 30th	22 cases
June	54
July	57
August	103
September	60
October	31
November	19
December	34
Total	380

The total expenditure for the same period was Rs. 1,351. The most difficult part of the scheme is to get hold of the lowest class of barbar midwife for training. It is hoped that registration and licensing may affect this."

The lines on which the present suggestions for legislation are recommended are somewhat similar to the foregoing. About five years ago the writer put up proposals for registering and licensing all midwives before the local Municipal Commission but this was deferred on the advice of the then Residency Surgeon Major(Lieutnant Colonel) R. W. Knox, I. M.S., who thought it premature This subject has since been put up again for fresh consideration and is pending.

For the proposed legislation the following measures are recommended :—

1. Compulsory registration and licensing of all women practising midwifery ; a penalty to be imposed for noncompliance.

2. Compulsory training of all unqualified Dhais (' Barber midwives ') for a definite period (at least three months) in recognized Maternity Hospitals, so that they could be brought under section tion (1).

(3) The undermentioned general conditions may be imposed on the Registered Midwives before the grant of licenses to practice midwifery.

(*a*) Every qualified midwife or Dhai practising midwifery shall be registered and shall take out a license for the same.

(*b*) Every child-birth conducted by her shall be reported within twenty-four hours of its occurrence to the administrative officer of the district. (" Administrative Officers " to mean such officers as may be appointed under this regulation by Municipalities, District Boards and other recognized local authorities.) Such reports should be accompanied by the following details as per tabular form *vide* Appendix V.

NOTE.—Such forms will be supplied free by the administratives officers.

(*c*) Every such midwife or Dhai shall conduct labour in as cleanly a manner as possible and she shall take all precautions necessary for the welfare and safety of the mother and the newborn infant.

(*d*) Every child delivered alive shall have its eyes washed with a 10 p. c. solution of Boracic Acid (or other solutions may be selected) immediately after its birth.

NOTE.—This solution (or any other suitable one decided upon by the legislating authority) will be supplied gratis by the administrative officers of the locality.

(*e*) In cases where difficult labour is anticipated, or immediately after signs of such conditions are noticed, the midwife or Dhai in attendance shall advise the house-holder either to send the patient to a Maternity Hospital or to seek the advise of a Medical Practitioner.

(*f*) The Administrative Officer shall have the power to depute any officer to visit any or all of the confined cases, whenever necessary.

(*g*) The Midwife or Dhai shall report to the Administrative Officer of the locality any insanitary conditions, etc., noticed in the house or houses which she has attended.

(*h*) Every Midwife or Dhai shall provide herself with a standard out-fit consisting of the following :—

(1) Enema set.
(2) Douche Set.
(3) Dressing Forceps.
(4) ,, Scissors.
(5) Cotton, Wool and Lint.
(6) Crotchet thread for ligaturing the cord.
(7) Soap, Nail Brush, and Basin.
(8) Potassium Permanganate for lotion to clean hands, etc.
(9) A little Boric Powder for dusting.
(10) Vaseline (Pure).
(11) Clinical Thermometer.
(12) Stethescope (wood).

(*i*) *Penalty Clause.*—Breach of any of these conditions shall render the offender or offenders liable on conviction, before a magistrate to a fine not exceeeing Rs. (amount to be fixed).

The above sections do not provide any specific proviso for the offence of causing or inducing abortion with criminal intent. For this, the Indian Penal Code under Sections 313, 314, 315 and 316 provides sufficient safeguards and restrictions.

Diplomas granted by recognized Maternity Hospitals should be accepted in the case of those possessing them for Registration and Licensing purposes.

There are certain terms which require explanation, namely " grant of license," " Registration," " Administrative Officer " " Administrative Body."

Licenses shall mean duly authorized permits to practice midwifery issued by administrative bodies (Municipalities, etc.).

" Registration,"—Entry of the name of the practising Dhai or Midwife in the Register kept for the purpose by the Local Authority granting licenses. (A nominal fee may be levied for registration, to cover clerical and other charges.)

" Administrative Body," will include, Municipality, District Board or any other State corporate body. In the case of Municipal towns, the President or Chairman of the Municipality should be the Registering Officer. He can be advised on these points by the District Medical and Sanitary Officer, Civil Surgeon or Health Officer, as the case may be. These regulations may, in the first instance, be enforced in the larger cities and towns where the difficulties would be very little, if any, as supervising officers and Maternity-Hospitals are always handy. It would be best to have a Female Health Visitor to assist in this work who should be a direct subordinate of the District Medical and Sanitary Officer, Civil Surgeon or Health Officer.

With regard to village areas (*i.e.*, rural districts) the Chief Administrative Officer should be the Collector of the District who can make the necessary arrangements through Tahsildars, Assistant Surgeons or Sub-Assistant Surgeons. In these cases the District Medical and Sanitary Officer should be the advising officer.

N.B.—The administrative body or officer may erase any name from the register and cancel the license granted to the party or suspend such defaulting midwife or midwives from practice, with or without assigning reasons for the same.

Appendix I.

The following statistical figures for England and Wales will be found interesting (Statement of the Registrar-General extracted from the British Medical Journal, February 2nd, 1918) :—

I.—Birth rate, Death rate and Infant mortality during the year 1917. (Provisional Figures.)

	Birth-rate per 1,000 total population	Civilian death-rate per 1,000 civilian population	Deaths under one year per 1,000 births
England and Wales	17·7	14·4	97
Ninety-six great towns, including London (populations exceeding 50,000 at the Census of 1911)	18·0	14·6	104
148 smaller towns (populations from 20,000 to 50,000 at the Census of 1911)	17·9	13·1	93
London	17·4	15·0	103

II.—Ten-year statement (for 1908—1917) showing Birth rate, Death rate and Infantile mortality.

	Births per 1,000 total population	Deaths per 1,000	Deaths under one year per 1,000 births
1908	26·5	14·7	121
1909	25·6	14·5	109
1910	24·8	13·4	106
1911	24·4	14·6	130
1912	23·8	13·3	95
1913	23·9	13·7	109
1914	23·6	13·9	105
1915	21·9	15·1	110
1916	21·6	14·0	91
1917	17·7	14·4	97

Despite war conditions the figures (excepting Birth rate) are very satisfactory. The infant mortality for 1916 and 1917 are below 100, that for 1916 being the lowest for England and Wales.

APPENDIX II.

Total number of Deaths of Children under one year—in Districts of Mysore State (Collected from the Annual Reports of the Sanitary Commissioner in Mysore).

	1914		1913		1912		1911		1910	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Bangalore ..	1,216	1,097	1,052	769	877	698	693	640	809	670
Kolar	1,368	1,127	1,182	1,037	1,213	998	947	885	1,484	1,177
Tumkur	1,404	1,220	1,278	1,055	978	815	712	604	345	258
Mysore	788	708	673	517	644	499	655	548	887	790
Hassan	620	574	587	503	531	422	464	413	418	416
Shimoga	1,097	947	820	685	858	718	729	616	732	659
Kadur	424	361	480	361	393	300	327	263	355	318
Chitaldrug ..	962	890	1,333	1,252	743	638	455	423	640	524
Total for the State ..	7,879	6,924	7,405	6,189	6,237	5,088	4,982	4,392	5,670	4,812
Population	68,373	71,817	68,373	71,873	68,373	71,817	70,044	71,285	70,044	71,285
Ratio per 1,000 living.	115·23	96·41	108·33	86·08	91·22	70·85	71·13	61·61	89·95	67·50

APPENDIX III.

Indian Infantile Mortality rates (Five years) of important Cities, (Municipalities.)

Municipalities	1911-12	1912-13	1913-14	1914-15	1915-16
Calcutta	379.81	448.2	381.1	385.1	329.2
Bombay	251.6	259.6	274.8	282.7	..
Madras	305.3	285.1	293.4	308.9	265.1
Lahore	306.8	242.9	287.1	248.1	298.9
Cawnpore	..	411.72	430.91	305.82	344.6
Simla	..	297.8	247.3	251.3	241.0
Nagpur	..	..	285.4	312.7	310.7
Moulmein	..	273	164	225	219

APPENDIX IV.

Ratio of Infantile deaths per 1,000 births during the year in Civil and Military Station, Bangalore, from 1905.

Official years (1st April to 31st March)	Ratio per 1,000 births	Remarks
1905-06	418.67	
1906-07	345.42	
1907-08	302.33	
1908-09	340.12	
1909-10	353.48	
1910-11	320.30	Two Municipal Midwives first appointed.
1911-12	267.83	
1912-13	332.92	
1913-14	233.48	
1914-15	232.35	Six Municipal Midwives are now working.
1915-16	225.25	
1916-17	243.28	
1917-18	276.3	

APPENDIX V.

Report of Birth

Date.....

Place .....

No.	Sex	Still born or born alive	Name of father	Name of mother	Address of house	Date and time of birth	Normal or difficult labour	Sanitary condition of house	Remarks

To

(The Administrative Authority)

(*i.e.*, D.M. & S.O., H.O., etc.)

Signature (of Nurse).

Date . .....

Place .....

(6) MEDICAL INSPECTION OF SCHOOLS.

Children.

According to the Elementary Education Act of 1876 of England, the school-going age is fixed from five to fourteen years. The same Act empowers prohibition of children being employed below ten years unless a certificate is produced that the child is in proper standard. The object of this is to prevent child labour to act too disastrously on the educational needs of the child. In our Province the School-going age for areas where elementary education is made compulsory is fixed from seven to eleven years. A child aged from 7 to eleven years is of little help to the parents, but such children may be seen absenting themselves from the school without any tangible cause. Therefore it must be made incumbent on the parents that the children between seven and eleven years should attend school at least for four hours in the morning, *i.e.*, from 7 to 11. I have been inspecting the various elemen ary schools in the villages of the Sanitary Board area and I have noticed that the attendance of the children is not in accordance with the attendance roll maintained by the teacher. Sometimes nearly one half of the number of the children have been found to be absent. At times the children from a neighbouring village have been found to be absent in toto and the excuse given for the absence was that as it was the day for contributing labour towards village improvement the children have been taken to contribute their quota.

Medical inspection of School Children should be made at the time the child is admitted into the school. For the present it can be done in all the Elementary Schools the District and Taluk Head-quarters and in such places where there are Local Fund Dispensaries. This examination should enable the Examining Medical Officer to find out the real disabilities of the child, *i.e.*, blindness or deafness. So that the Medical inspection may be carried out satisfactorily, the times of admission of new students must be fixed, say the beginning of every quarter and no child should be admitted into the school ten days after the beginning of a quarter. The child presented after this period should be noted and made to come to the school at the beginning of the next quarter. The Local Medica Officer who is appointed the school Medical Officer should be asked to examine the children newly admitted ten days after the beginning of the quarter. The examination must be in detail. The child must be examined for eyesight, hearing, enlarged glands and tonsils and enlarged spleen. Granula eyelids have to be looked for. Lungs and heart must be tested; history of previous illnesses mus be noted, particularly of small-pox, measles and chicken-pox. If the child has not had small-pox and has not been protected against the disease, it must be vaccinated at once. The Public Health Ac in England lays it down that the Board of Education should work with the co-operation of the parents It lays down that the parents should be present at the medical examination of the children for the the examining medical Officer can impress on the minds of the parents the necessity of having th child properly treated for the ailments detected. The same rule must be enforced for our schools als for then the parents though the majority would be ignorant of the little maladies of their children would be told what is to be done. If they are present, they could be advised how to bring up thei children. They should be spoken to about cleanliness, the advantage of sending their children t school regularly dressing them neatly, etc. The English Board of Education lays it down that thei should be at least three inspections by the Medical Officer during the scholastic career of the chil

i.e., 1st during the first year of admission, 2nd during the 2nd year and 3rd during the 6th year. So for a period of nine years of elementary education there would be three inspections at which the parents are required to be present. For our schools also three inspections may be introduced during the five years of study, *viz.*, 1st during the first year, 2nd during the second year and 3rd during the last year of study. This general inspection shall be at the beginning of the 1st quarter and at the beginning of the other 3 quarters, only those students who are newly admitted are to be examined.

In the course of the educational career of the children, it is possible to find children with such ailments, which would enable them to go to school, but which through the nature of their infectivity or contagiousness are libable to be conveyed to others. The principal diseases which are so conveyed are conjunctivitis or sore eyes and scabies or itch. Children with these ailments should be stopped from school till such time that they are cured. Further there are such diseases as small-pox, measles, chicken-pox and whooping cough in which though all the apparent signs of the disease have disappeared, the period of infectivity would not pass over and in the case of the last three diseases it has been the experience that the children have been sent to school too early and that the infection has been caught by others and the schools have for a time become depleted of their scholars.

The results of the inspection of the school children by the medical officer should be entered in a register maintained for the purpose. This register should be kept in the school. When a child changes his school from one place to another, an extract from this register should be sent to the teacher of the other school in which the child seeks admission.

The educational authorities should try to meet all evils disclosed by the medical inspection by adopting following procedure :—

(1) By notifying the parents and urging treatment in the dispensary.

(2) By appointing school nurses who can promote No. 1 by visiting the houses and advising to do the needful. The nurse forms the link between the school and children's houses.

(3) The Local Dispensary should be the school clinic.

(4) The itinerant dispensaries where existing may be used as travelling clinics for the schools. The real index for malaria in a locality is found in the children of school-going age by their splenic enlargements.

(5) Pamphlets should be published in Kannada and Hindustani giving the signs and symptoms of principal infectious diseases for the use of the teacher so that he may adopt measures to stop children from going to school and send them to the dispensary for treatment.

The teacher will have to pay great attention to the cleanliness of person and clothes of the children. It is common to find children who have not been washed for some days and it is not uncommon to find in the hair of boys and girls vermin. The teacher must make the nurse examine the children periodically for vermin and send for the parents and tell them what is to be done to get rid of the vermin.

The Medical Officer who inspects the school or schools has to submit a report which should embody the following in addition to other matters as regards hygienic condition of the school premises :—

(*a*) *Lighting of the Class Room.*—It is necessary that light should come from the left. It should be so arranged that there should not be a shadow on the book. The window area should at least be one-sixth of the floor area. The standard of sufficiency of light is gauged by making the children hold their books at a distance of 12 inches from the eyes.

(*b*) No dust should be allowed in the class room. The floors should be either of cement or tiles and must be swept clean of all dust. The use of sand or earth for teaching, writing the alphabets in the elementary schools should be discouraged.

(*c*) *Ventilation.*—If one-sixth of the floor area is allotted on the walls for windows, there will be ample provision made for ventilation.

(*d*) *Sanitary arrangements.*—Wherever there is a school there should be a latrine. Proper arrangements should be made for storage of water near the latrine for ablution purposes.

(*e*) *Drinking water.*—Provision should also be made for storage of water for drinking. Pots of water for different castes with small aluminium tumblers should be provided.

(*f*) *Provision of seats and desks of proper height for the various standards.*—The squatting of children on the ground and reading with books on the floor or on their laps should be put a stop to. In this posture, the head is bent too forward and it is possible that this posture may result in some physical defect of the body. Children of School-going age often contract injurious habits unnoticed by the parents or the teacher until much harm is accomplished. At this stage the bones and legament of growing children are very pliable and considerable injury may be done to the tender frame work of the growing body. If the child is allowed to sit bent over his book in a more or less humped up position for any length of time the muscles of the back will soon become weakened and before long the child will be round shouldered or the spine will become curved.

Faulty methods of standing are also harmful. There are children who form the habit of standing more or less on one foot. This will induce one shoulder becoming more elevated than the other and also one hip raised if the faulty position is allowed to continue too long.

(7) Village Improvement.

The Chief requirements of villages from a Sanitarian's point of view are :—

1. Proper alignment of houses and prevention of overcrowding on area with well laid streets and lanes.

2. A good system of water-supply.
3. A good system of surface drains.
4. Adequate arrangements for the removal of excreta and proper conservancy of the surface.
5. Prevention of accumulation of stagment water.
6. Removal of shrubs and rank vegetation from the surrounding of villages and houses therein.

Village Planning.—The scheme of construction of a village should first be formulated showing the directions of all streets and lanes and surface drains.

Streets and Lanes.—All village streets and lanes should run in straight lines and cross at right angles. The width of the street depends on the extent of ground allowed to the people to build their new houses. When the plot of ground is a big one, the streets should not be less than 30 feet wide and in case of a small plot of ground and where the houses to be built are of small dimensions it would not be possible to have streets wider than 20 feet and lanes 10 to 12 feet.

Alignment of houses.—The houses should be properly aligned with streets and lanes and this should be marked on the ground. The houses should be made to be built in such a way that they should have a front verandah along the whole length of it, two rooms, one for sitting and sleeping and the other to store grains, etc., and a back verandah one half of which may be converted into kitchen. The present system is to have a single room without any verandah either in front or at the back and this is used to store up grains, to sleep and cook the food. In addition one not infrequently finds that a man possessing a few cattle, these are tied in a corner of the room. With the arrangements that I have suggested for the alignment of rooms, cattle should not be permitted to be tied in the house and cattle shed should be separated from the main dwelling house by a court-yard which should be enclosed by a wall and the gate of ingress and egress for the cattle must be in this wall. The houses should be elevated from the general level of the surface by at least a foot. The floor may be made with well mixed clay and when practicable a concrete floor should be insisted upon. The walls constructed of sized stones or bricks set in good clay and in the absence of these with the best material available. These walls should be plastered both in and out either with good clay or mortar so that they may look even and allow a good coating of a periodical limewash. The roof must be of tiles and when not practicable of thatch. Each room should have two opposite windows 3 feet $\times 2\frac{1}{2}$ feet in size and a door $5\frac{1}{2}$ feet $\times 3$ feet. No loft or " atta " should be allowed for the house as this will be used to accumulate all sorts of unserviceable articles which are more suited to be committed to the fire. If the household desires to have any latrine it should be placed in the farthest corner of the courtyard with a trap door opening in the conservancy lane so that it may be easily accessible to the scavenger for cleaning. No pit system should be allowed.

Water-supply.—The water-supply should be easily accessible and this should in all cases, be by means of a draw-well. In no case, a step-well should be allowed for it is always open to contamination. A deep well is preferable to a shallow well, for water from such a well is as a rule pure and wholesome and free from fouling by organic matter. In the case of a shallow well which has a depth of 20 feet or 30 feet the diameter of the base of th cone drained may be anything up to 200 yards or more and any impurities contained in the soil in the supplying area will gradually reach the water. Pollution of shallow wells may occur from cesspits, privypits and manure heaps and collections of refuse house waters. All wells should be well protected from contamination by lining the wells with some impermeable materials such as concrete or hydraulic cement, so as to prevent subsoil water finding its way to the water of the well. If however shallow wells cannot be avoided the lining should reach to below the level of water, whereas in the case of deep wells to below the first impermeable stratum. The well should have a parapet wall of stone or brick to a height of at least 4 feet and the ground around the base of the parapet wall should be provided with a sloping platform or pavement of at least 10 feet in diameter made in concrete with a drain of some material and cement to carry away the waste water which should empty either into the main drain of the village or in a cistern made impervious. It is advocated that the mouths of wells should be covered to prevent dust, bird droppings, and leaves and insects of all kinds gaining access and to provide the well with pumps. Though this is the best, it is not well suited for the village folk, and when there are so many villages which require draw wells financially it is not possible. The water may be drawn by means of a pulley but in a vessel or bucket common to the village to prevent contamination of water from a particular vessel from a particular household. This public water supply of villages should be in charge of the Patel who should be held responsible for its proper management, periodical cleanings, etc. There is probably no single factor in the organization of public health arrangements of villages deserving of greater attention than this one of water supply.

Drainage.—The drains connected with the house should be made in stone and mortar and communicate with the main drains. They should be kept clean by being daily flushed with water. Those drains may lead to some natural drainage channel behind the village.

Cesspools in the villages are not desirable as the ones that are constructed are either too small or too big so as to allow either an over flow over surface or an accumulation of sullage for a long period. Even in the case of small ones the regular emptying of them is of very rare occurrance.

As stated above the cattle, goats and sheep should be housed in a separate building at the end of the court-yard. The cowdung and dropping from other animals should be caused to be removed every day. These should not be allowed to accumulate near the house but a place for each village should be selected and it must be removed to this spot which must be at least a furlong away from the limits of the village.

In building a new village or in disposing of license for building new houses in old villages no back to back houses should be allowed. Between the adjoining rows of houses there should be a space at least 10 to 12 feet wide.

Village Latrine.—The ordinary habit of village people is to resort to some waste land in the neighbourhood to carry out the offices of nature and from a sanitary point of view, this cannot be entirely objected to so long as the place selected is far away from the dwelling houses. But one generally finds that any place which affords a little privacy is used as latrine and in many instances such places are old and disused houses. Economically it is wrong to use the waste land as the excreta are valuable as manure which should be used to nourish the soil. Therefore it would be preferable to use fields that are to be cultivated. Waste land is not the only place resorted to; the banks of rivers, streams, canals, tanks, etc., near villages are favourite places, to be used as latrines for there is easy access to water for ablution. This practice is the cause of the spread of such diseases as dysentery, diarrhoea, cholera, typhoid, intestinal worms, etc. The Patel of villages should be instructed on these matters and be held responsible that the people use only selected sites as latrines. For villages a space should be set apart far away from the village with zinc sheet or mat screen compartments within which shallow trenches a foot deep and 9 inches wide should be used. In this form of trenches all the urine, foeces and ablution water falls directly into the trench as the user squats astride the trenches and not on one side. If the trenches are wider the user may sit on one side and soil the sides of the trench. A small quantity of dry earth should be thrown into the trenches daily. As each trench is filled up, the enclosure is removed to the next plot for trenches. When a plot of ground is thus filled up with these trenches it may be cultivated and after some time used again. This leads to the question as who should do this work as in many villages a scavenger cannot be found. For the present, there is a set of four village officials, *viz.*, the Patel the headman, Toty the watchman and guide; Talary the scout to trace robbers, etc.; and *Nirgunti* the supplier or the man who regulates the supply of irrigating water to wet lands. While none of these are strictly enjoined to look after the sanitation of the village, they are supposed to look after the economical needs and safety of the people. I would therefore suggest that a scavenger for one big or 2 or 3 small neighbouring villages may be appointed giving him the same remuneration as is allowed to the other village menials in the form of land free of rent or on a very light assessment. In addition to this he may be allowed an annual payment of money varying from Rs. 12 to Rs. 24. By the introduction of this village servant people in better circumstances will be encouraged to have their own privies on modern principles to be cleaned every day instead of the old fashioned pit system.

Old Villages.—As regards old villages, houses are built indiscriminately without any arrangements for streets and drainage. The houses themselves are built of bad materials and without any provision for ventilation. No doubt some people are very poor to have good houses, but such people should not be permitted to build houses in the heart of the village. A different locality in the village should be allocated to them for their houses will not be bigger than huts. Many of these poor people who live in little hovels are the land tenants of men who live in towns or cities. It is these people who should be made to build houses for their tenants. The houses need not be big ones, they may be small but on sanitary principles. In the existing villages the chief improvements that are needed are; opening up of congested areas and making streets and drains improvement of water supply, efficient scavenging, provision of doors of proper height and of proper sized windows with shutters. To remove congestion some of the houses will have to be demolished after paying the compensation and if the old site has been a good one, an extension of the village must be caused to be made in continuation and the dislodged people must be made to build in this extension. If the site is not a good one, a new site may be selected for new houses. In this way, houses can be arranged in rows and streets and lanes may be opened up with proper arrangements for drainage. In the case of the houses where there are not efficient means of ventilation, windows must be made to be put in. Though we may prescribe the size of the window to be $3' \times 2\frac{1}{2}'$ or $2\frac{1}{2}' \times 2'$, yet it will be much smaller in 75 per cent. of the cases. In some cases there will be an opening $1'$ or $\frac{1}{2}'$ square for a window with sticks pierced through, in imitation of iron bars. The doors in many cases will not be more than $4' \times 2'$ and one has to get into the house with head bent. These defects have all to be remedied and to have them done will it not be a good thing to make the people buy their doors and windows from a central agency in the hobli, the Sheikdar selling them at cost price. The articles may be got made in the various Industrial Schools.

Prevention of malaria.—While speaking on the subject of village improvement, I take the opportunity to mention methods of *Prevention of malaria* in villages:—The reduction of Malarial diseases in villages is one of the most important economic questions of our Province. It is at the same time difficult one to accomplish, because of the ignorance and poor circumstances of the rural population in general. The fundamental cause of rural malaria is the universal existance of breeding places of malaria carrying mosquitoes, and the essential cause of this is connected with the agricultural methods adopted in the country. Practically all wet cultivation is carried out by irrigation without subsoil drainage and such cultivation is continued up to the very village huts on all sides. In villages where endemic malaria prevails we find fevers and enlarged spleens with anaemia, dysentery and diarrhoea causing a heavy mortality especially among the young population not to mention of the periodical visitations of epidemic malaria which carry off many other victims.

The principal antimalarial measures to be recommended are:—

(i) The treatment of all cases of malarial fever and malarial enlargement of spleen with

quinine issued gratis to poor people, through itinerant medical men or through the Patel or the village Postmaster. This has to be carried out with the aid of the Provincial Government.

(ii) The making of properly graded surface drains even if these are katcha drains.

(iii) Prevention of accumulation of water near houses in chatties and pots.

(iv) Filling up of all borrowpits and excavations in and around villages for a distance of at least 100 yards.

(v) Prevention of all cultivation with 100 yards limit; in the case of rice and sugar cane this area should be extended to 200 yards.

(vi Keeping this 100 yards area and the interior of the village free from mosquitoes and their larvae. This can be done by covering the surface of water with kerosene oil and this must be done by the individual house owner within whose property this water may be found. A great deal may be done to lessen the prevalence of malaria and reduce the malaria bearing mosquitoes in the villages by the conjoint efforts of the villagers themselves. The villagers through Patels or village Committees should be made to unde stand the rationale of our present day preventive measures against malaria. Placards must be printed in local vernaculars and posted in the chavadies and schools where epidemic malaria prevails. These placards should state in simple language the nature of malaria, that it is caused by parasites in blood injected by a particuliar species of mosquitoes and the method in which quinine acts both curatively and prophylactically and that the abolition of breeding places of these mosquitoes is followed by a reduction of malaria. There should also be a picture of adults of this particular mosquitoes and other species and also of their larvae stating briefly how they are distinguished. This is being done in the Phillipines, in Hongkong and in French African Settlements, as these pictures will show. In the British African possessions notices are served when mosquito breeding pools are found. The following is the specimen of the notice served —

"I hereby give you notice that mosquitoe larvae have this day been found in a collection of water in the compound owned by you."

"You are required to abate this nuisance within twenty-four hours, failing which legal proceedings will be taken against you."

(Signed.)

Sanitary Inspector.

Similar placards may be caused to be posted as regards Cholera and Plague also.

There are so many improvements suggested and how to carry them out? First of all there must be legislation without which there shall be no progress. When the laws and the rules are framed the Village Committee or the Union should be entrusted with the work of looking after their own village. This union will correspond to the local authority of the rural areas of the United Kingdom. In some instances the patels are illiterate and as poor as the poorest inhabitant of the village. In other such cases he cannot exercise any influence over his people. In other cases, one finds the patel very indifferent towards the well being and progress of his people. Such patels are not desirable to be at the head of the committee. A patel must not only be a literate man who should thus be able to diffuse knowledge towards progress, but also a man in affluent circumstances. Affluence leads to self-respect and both affluence and self-respect will command influence and authority. A man possessing these qualifications will better be able to lead his people in the right path. The members of the committee must be the leaders of the different sects or communities of the village, each member being made to represent a certain sector of the village. In my opinion even the depressed class should be represented on the Committee. The members to start with may be nominated and after a time when the people have come to understand the usefulness of such a union they may be elected. Each member must represent not only a particular community but also a particular sector of the village, as this will emulate competition among the members. In short, the village committee must be a Municipal body in miniature, and with Laws and Regulations for their guidance and administration, these shall be local self-Government for our Rural Areas.

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